RAWLINS

BIOLOGICAL ASSESSMENT

BUREAU OF LAND MANAGEMENT
Rawlins Field Office
Rawlins, Wyoming

PREPARED BY

United States Department of the Interior
Bureau of Land Management
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In cooperation with

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INTRODUCTION

This Biological Assessment (BA) is prepared for the Draft Environmental Impact Statement (DEIS) that describes the comprehensive analysis of alternatives for the planning and management of public lands and resources administered by the Bureau of Land Management (Bureau, or BLM) in the Resource Management Plan planning area (RMPPA) of Wyoming. The public lands and federal mineral estate within the RMPPA are the subject of the planning effort (DEIS) and this document. This document is a component of the Bureau DEIS Resource Management Plan (RMP) and is prepared in compliance with the National Environmental Policy Act (NEPA), which requires that an Environmental Impact Statement be prepared for any federal actions that may significantly affect the human environment. The preparation and adoption of an RMP by the Bureau is such a federal action.

Under provisions of the federal Endangered Species Act of 1973, as amended (ESA) (16 U.S.C. Section 1531 et seq.), federal agencies are directed to conserve threatened and endangered species (T&E) and the habitats in which these species are found. Section 7(c) of the ESA requires the RMPPA to complete a BA to determine the effects of implementing the DEIS RMP on listed and proposed species, based on compliance with Section 102 of NEPA. Federal agencies are required to consider, avoid, or prevent adverse impacts to fish and wildlife species. Federal agencies are also required to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of T&E species or their Critical habitat. The ESA requires action agencies, such as the Bureau, to consult or confer with U.S. Fish and Wildlife Service (also referred to as "the Service" [USFWS]) when there is discretionary federal involvement or control over the action and to ensure that resources are afforded adequate consideration and protection. Formal consultation becomes necessary when the action agency requests consultation after determining that the proposed action is likely to adversely affect listed species or Critical habitat, or when the aforementioned federal agencies do not concur with the action agency's finding (USFWS Consultation Handbook 1998). In addition, under the 1994 Memorandum of Understanding (MOU) and the 2000 Memorandum of Agreement (MOA) among the Bureau, U.S. Forest Service (USFS), the Service, and National Marine Fisheries Service (NMFS), the four agencies agreed to promote the conservation of candidate and proposed species (Special Status Species) and streamline the Section 7 consultation and coordination process.

The objective of this programmatic BA is to provide documentation and analysis for the proposed action to meet the federal requirements and agreements set forth among the federal agencies. It addresses federally listed T&E, candidate, and proposed species and has been prepared under the 1973 ESA Section 7 regulations, in accordance with the 1998 procedures set forth by the Service and NMFS, and in accordance with the 1994 MOU and 2000 MOA. The RMPPA and contractor wildlife biologists, in coordination with the Service wildlife biologist, conducted an analysis concerning the effects of the DEIS preferred alternative on listed species. Site-specific evaluations will be conducted for activities authorized under the RMP, and consultation or conference would occur with the Service for those activities that may affect threatened, endangered, candidate, or proposed species. In addition, the Bureau would evaluate site-specific activities that may affect Bureau Wyoming Sensitive Species (Sensitive Species), in compliance with Bureau Manual 6840. This BA will not address Sensitive Species; these are addressed in the DEIS.

As part of this BA, the Bureau requests formal consultation for proposed actions that will lead to water depletion (consumption) in the Platte and/or Colorado River systems. This consultation is required for the four federally listed species of fish in the upper Colorado River system: the endangered Colorado

pikeminnow (*Ptychocheilus lucius*), the endangered humpback chub (*Gila cypha*), the endangered bonytail chub (*Gila elegans*), the endangered razorback sucker (*Xyrauchen texanus*) and their designated Critical habitat; and six federally listed species in the Platte River system: the endangered whooping crane (*Grus americana*) and its designated Critical habitat, the endangered interior least tern (*Sterna antillarum*), the threatened piping plover (*Charadrius melodus*) and its designated Critical habitat, the endangered pallid sturgeon (*Scaphirhynchus albus*), the endangered Eskimo curlew (*Numenius borealis*), and the threatened Western prairie fringed orchid (*Platanthera praeclara*).

In addition formal consultation and conferencing are requested for the federally listed endangered black-footed ferret (*Mustela nigripes*), the threatened Preble's meadow jumping mouse (*Zapus hudsonius preblei*) and its designated Critical habitat, the threatened Canada lynx (*Lynx canadensis*), the threatened bald eagle (*Haliaeetus leucocephalus*), the endangered Wyoming toad (*Bufo baxteri*), the threatened Ute ladies'-tresses plant (*Spiranthes diluvialis*), the threatened Colorado butterfly plant (*Gaura neomexicana ssp. coloradensis*) and its designated Critical habitat, and the endangered blowout penstemon plant (*Penstemon haydenii*).

The Bureau also requests recommendations from the Service on the management of habitat for the candidate Western populations of yellow-billed cuckoo (*Coccyzus americanus).* This species is a candidate for listing as threatened or endangered and may occur within the RMPPA. The Bureau has the requirement under Bureau Manual 6840 to protect candidate species from further population declines.

DESCRIPTION OF THE PROPOSED ACTION

The Bureau RMPPA is located in south-central Wyoming and includes approximately 11.2 million acres of land in Albany, Carbon, Laramie, and Sweetwater counties. Within this area, the RMPPA administers approximately 3.4 million acres of public land surface and mineral estate, 0.1 million acres of public land surface where the mineral estate is state and private, and 1.2 million acres of federal mineral estate where the surface is privately owned or state-owned. As stated above, the public lands and federal mineral estate within the RMPPA that are the subject of the planning effort (Bureau RMP), the actions that would occur, and the associated potential and/or known impacts that would result as a result of implementing the Bureau RMP, are the subject of this BA document.

The Record of Decision (ROD) for the existing Great Divide RMP (the predecessor to the Rawlins Field Office [RFO] RMP) was signed by the Wyoming Bureau State Director on November 8, 1990. The Great Divide RMP provides guidance and direction for management of Bureau-administered public land surface and federal mineral estate. The RMP is a set of comprehensive long-range decisions concerning the use and management of resources administered by the Bureau. It (1) provides an overview of goals, objectives, and needs associated with public lands management, and (2) resolves multiple-use conflicts or issues. On July 5, 2001, an evaluation of the Great Divide RMP was completed. The evaluation found the RMP to be deficient in several areas as a result of changing conditions and demands on the area's resources. As a result of these findings, the RMPPA has decided that the Great Divide RMP requires modification. The name of the newly revised RMP will be changed to the RFO RMP.

The objective of the RFO RMP is to provide specific management direction to prevent or address potential conflicts among energy resources development, recreational activities, livestock management, important wildlife habitat, and other important land and resource uses in the RMPPA, as well as to determine the appropriate levels and timing of these activities. Decisions made as a result of the ROD for this RFO RMP will result in amending the existing Great Divide RMP (November 1990).

The following discussion is a general qualitative overview/summarization of the RFO RMP activity programs and potentially authorized activities of the Bureau that may affect endangered, threatened,

proposed, and candidate species now or in the foreseeable future. Manpower and budgetary restrictions, and changes in biological and technological information may affect the extent to which the RMPPA may engage in the following program activities. Therefore the likelihood of these potentially authorized activities to occur is largely undeterminable at this scale over the life of the plan. Site-specific analysis and determinations of Section 7 consultations, where appropriate, will be conducted on a case-by-case basis throughout the life of the plan.

Air Quality—The Bureau's Air Quality program consists of monitoring efforts in cooperation with USFS, Wyoming Department of Environmental Quality (DEQ), and U.S. Environmental Protection Agency (EPA), and evaluating and restricting surface development. Monitoring for air quality components (i.e., carbon monoxide [CO], nitrogen dioxide [NO_2], sulfur dioxide [SO_2], ozone, particulate matter [PM_{10}], visibility, and atmospheric deposition) is conducted from various facilities around Wyoming.

Regional haze regulations developed by EPA require the Bureau to measure the distance at which one can distinguish a dark landscape feature. Haze-causing pollutants (mostly fine particles) are directly emitted to the atmosphere or are formed when gases emitted to the air form particles as they are carried downward. During air management activities, the Bureau applies dust control measures, obtains permits from DEQ, and collects meteorological and/or air quality data. While restricting surface development activities, the Bureau ensures that operators cover conveyors at mine sites, restrict flaring of natural gas, limit emissions, and restrict spacing on projects.

Air quality management objectives are to maintain or enhance air quality and minimize emissions that could result in atmospheric deposition (acid rain), violations of air quality standards, or reduced visibility. Laws controlling air pollutants in the United States are the Clean Air Act of 1970 and its amendments, and the 1999 Regional Haze Regulations. The concentrations of air contaminates in the RMPPA need to be within limits of Wyoming ambient air quality standards (WAAQS) and national ambient air quality standards (NAAQS). Both WAAQS and NAAQS are legally enforceable standards for PM_{10}, NO_2, ozone, SO_2, and CO.

In addition to NAAQS and WAAQS, major new sources of pollutants or modifications to sources must comply with the New Source Performance Standards and Prevention of Significant Deterioration (PSD). The PSD increments measure PM_{10}, SO_2, and NO_2. The PSD program is used to measure air quality to ensure that areas with clean air do not significantly deteriorate, while maintaining a margin for industrial growth.

Cultural Resources—The Bureau performs a variety of activities to preserve, protect, and restore cultural and historical resources. During inventory activities, the Bureau inventories, categorizes, and preserves cultural resources, conducts field activities, performs excavations, maps and collects surface materials, researches records, and photographs sites and cultural resources. Temporary campsites may be authorized for these activities. Inventory data collection activities are used for documentation and development of mitigation plans prior to other resource program surface disturbing activities. Inventory activities commonly entail the use of hand tools. Data recovery activities occasionally entail the use of power tools and heavy equipment. The Bureau's cultural resource land management activities involve managing sites for scientific, public, and sociocultural use; developing interpretive sites; restricting certain land uses; closing certain areas to exploration; prohibiting some surface disturbing activities; and preparing interpretive materials. The Bureau also seeks listing of eligible sites on the National Register of Historic Places, installs protective fencing for trail segments and other cultural resources, stabilizes deteriorating buildings and resources, acquires access to sites when necessary, performs data recovery excavations, pursues withdrawal of areas from exploration and development of locatable minerals, designates avoidance areas, pursues cooperative agreements, and identifies and interprets historic trails.

The Bureau performs cultural resource inventories normally in response to other surface disturbance activities. Inventories include transects set 30 meters (100 feet) apart from each other.

Fire and Fuels Management—The two major categories of activities involved in the Bureau's fire management program are fuels treatments (including biological, chemical, prescribed burning, and mechanical treatments) and wildland fire suppression. During fuels treatment activities, the Bureau evaluates areas on a case-by-case basis; writes activity plans, which encompass any of the above listed treatments; coordinates with all necessary parties; and conducts treatment projects. Fuels treatments are used to enhance natural resources in the area. They can be used to dispose of slash and residue from timber sales. Fuels treatments are sometimes used to reduce the fuel levels before a treatment activity. Most fuels treatments are conducted to improve wildlife habitat and rangeland health.

Wildland fire suppression activities, on the other hand, are conducted on an emergency basis. Preplanning for wildland fire suppression takes place in many forms before a fire may occur. Wildland fire suppression activities vary with the intensity of the wildland fire and can involve the use of off-highway vehicles (OHV), hand tools, aviation resources, and heavy equipment such as bulldozers. Firelines are constructed to contain the wildland fire. Chemical fire suppression agents (ground-based) containing surfactant compounds, ammonium nitrate compounds, and chemical dyes may be used if needed. In addition, fire retardant drops containing chemical dyes (aircraft dispersal) are used. These may affect the aquatic environment if used where the chemicals may enter streams. Water is withdrawn from nearby sources to suppress the fire. Nearby sources may include streams, lakes, or public water supplies. After the fire is extinguished, the Bureau may use rehabilitation techniques to stabilize the disturbed or burned area. Rehabilitation techniques may involve planting small trees, grass, forbs, and shrubs to bring the site back to its original vegetative state.

Through wildland fire suppression activities, the Bureau seeks to effectively protect life, property, and resource values from wildland fire. The Bureau uses fire suppression on fires endangering human life or on fires that come within 1 mile of state or private lands, structures, and facilities. Acres of wildland fire fluctuate annually. Recent trends throughout the Wyoming Bureau are similar to trends throughout the West, with larger, catastrophic fires in recent years due to drought conditions and past fire suppression policies.

Forest Management—The Bureau's forest management program involves a variety of different activities. Most activities involve timber harvesting. Other activities involve managing the forest for other uses. During forest management activities for timber production in the preharvest phase, trees are cut and removed or treated if diseased. Permits are issued for precommercial thinning, chaining, and shearing. Harvesting activities include clearcuts, selective cutting, slash disposal, commercial thinning, helicopter/traditional logging, and skidder-type yarding and cable yarding. Harvesting also includes the construction of roads and landings. Slash is lopped and scattered, roller chopped, or burned. Noncommercial timber harvest involves the collection and cutting of firewood, Christmas trees, posts, poles, and wildlings. During restoration efforts following timber harvesting, the Bureau ensures site regeneration (natural), artificial regeneration (planting harvested areas, including with new seedlings), and stand replacements; fences regenerated areas; and conducts rehabilitation surveys.

Lands and Realty—The lands and realty management program seeks to support multiple-use management goals of the Bureau resource programs; responds to public requests for land use authorizations, sales, and exchanges; and acquires and designates rights-of-way (ROW) access to serve administrative and public needs.

ROWs granted by the Bureau are utilized for access roads, well pads, pipelines, communication sites, ditches and canals, buried telephone lines and fiber optic lines, reservoirs, compressor stations and other

facilities, and electrical distribution lines (power lines) associated with proposed projects and/or activities. In addition the Bureau authorizes ROWs and leases for utility transportation corridors. A ROW is generally issued for a term of 30 years and may be extended with the right of renewal.

Land tenure adjustment requests, such as disposals or transfers of public lands through Desert Land Entry, sale, exchange, State of Wyoming indemnity selection, or Recreation and Public Purposes (R&PP) leases or patents, are also reviewed.

In its lands and realty management program, the Bureau implements or authorizes programs that may or may not require stipulations and protective measures. Activities include but are limited to designating, canceling, or changing stock driveways; processing locatable mineral entry withdrawals; and establishing protective withdrawals.

In addition the Bureau pursues cooperative agreements, develops recreation site facilities, considers offsite mitigation, minimizes access in wildlife habitat, fences revegetation sites, blocks linear ROWs to vehicle use, considers temporary use permits (less than 3 years—e.g., rig stacking, and commercial filming and photography permits), considers new withdrawals, leases acres for landfills, acquires conservation easements, closes roads, and rehabilitates areas.

Withdrawals are used to preserve sensitive environmental values, protect major federal investments in facilities, support national security, and provide for public health and safety. They segregate a portion of public lands and suspend certain operations of the public land laws, such as desert land entries or mining claims. Land withdrawals can be used to transfer jurisdiction to other federal land-managing agencies.

The lands and realty program also authorizes wind energy development. Wind energy development projects are considered on a case-by-case basis. Wind turbines authorized by the Bureau typically are up to 180 feet in height, with an 80-foot turbine diameter. Each turbine would encompass approximately 1.2 acres. Ancillary uses would include meteorological towers, roads, and power lines.

Livestock Management—A number of activities make up the Bureau's livestock management program. These activities include livestock grazing management, vegetation treatments, and range improvements.

Livestock management includes authorizing livestock grazing; designing and implementing grazing systems; converting types of livestock; abolishing stock trails and driveways; and adjusting season of use, distribution, kind, class, and number of livestock. Vegetation treatments for livestock management include the use of prescribed fire; chemical, mechanical, and biological treatments; and noxious and invasive weed control. These are discussed under the Vegetation Management section of this BA. Other activities for livestock management include supplemental feeding and herding of livestock. Range improvements include fence construction, maintenance, and modification (including exclosures and cattle guards), water developments (reservoirs, seeps, springs, pipelines, catchments, and wells), and instream structures.

Minerals—The Bureau's mineral development program is divided into three categories. These categories are disposable minerals, leasable minerals, and locatable minerals.

Common Variety Minerals—Common variety mineral mining is authorized under the Materials Act of 1947, as amended, and as such are discretionary actions. Common variety minerals include sand, gravel, sandstone, shale, limestone, dolomite, and any material considered a common variety. Historical use of these materials was for building materials, road surfaces, and decorative stone. Today common variety minerals mainly are used for maintaining roads and for activities associated with the oil and gas industry. The Bureau provides sand, gravel, and stone from federal mineral deposits as necessary to meet the need

for federal, state, and local road construction and maintenance projects in the RMPPA. These materials may be disposable or available by a free use permit to state and local governments.

Before issuing contracts or free use permits for common variety minerals, the Bureau conducts appropriate environmental assessments. These include special studies or inventories of cultural values, threatened or endangered plant and wildlife species, or other resources. Stipulations or conditions may be included in the terms of the contract to ensure protection of the natural resource found there and reclamation of the land following project completion. Site reclamation is required following any surface disturbing mining activity for common variety minerals. Reclamation of disturbed sites is important to ensure that the land can later be used productively for other purposes. Reclamation includes removing all artificial debris, recontouring, reducing steep slopes, replacing topsoil, and seeding and planting vegetation. All reclamation proposals must conform to state requirements and must be approved by the Bureau.

Leasable Minerals—Leasable minerals include solid minerals such as coal, and fluid minerals such as oil, gas, and coalbed methane gas.

Leasable Minerals (Solid)—There are six significant coalfields within the RMPPA containing coal resources of subbituminous to bituminous rank. These fields include the Hanna-Carbon Basin, Great Divide Basin, Rock Creek, Kindt Basin, Little Snake River, and Goshen Hole Coalfields. Of these, the Hanna Field has been the most significant in terms of both historic and projected coal production. In 2000 the Hanna Field had three active coal mines (two surface and one underground mine); as of mid-2002, there are two mines that are still active (Seminoe No. II mine and Medicine Bow mine). These existing mines are expected to remain in operation for less than 2 years.

Most activity in the remaining fields has typically been small-scale, and in some cases the coal resource has yet to be economically exploited. Federal coal has been recovered using strip mines (27 million tons) and extracted using underground mining methods (16 million tons).

Leasable Minerals (Fluid)—The Mineral Leasing Act of 1920 provides that all public lands are open to oil and gas leasing unless specifically designated by public law (43 CFR 3100.0-3). To acquire a lease, acreage is nominated by the public to be included in an oil and gas lease sale. This acreage is subdivided into parcels and sent to the appropriate Bureau field office. The field office reviews the parcel for potential conflicts with other resources, and appropriate stipulations for the protection of wildlife and other sensitive resources are included in the lease language.

Mineral exploration involves opening new areas to geophysical exploration, leasing and potentially drilling for oil, gas, coalbed methane, and other leasable minerals. Mineral development involves an expansion of the exploration phase, with construction and initial reclamation of well pads, access roads, reserve pits, windpower associated with leases, and other facilities that may include aboveground power lines and buried pipelines. Stipulations included in the lease language allow protection by controlled surface use (CSU) restrictions or no surface occupancy (NSO) restrictions if the resource requires these measures. Partial reclamation is required during the production phase, and full restoration is required after the project is abandoned.

Before seismic activity begins, a Notice of Intent (NOI), which details the location, type of activity, and a cultural inventory, must be filed in the appropriate Bureau field office. The Bureau conducts an in-office environmental analysis to determine if any threatened or endangered species will be affected. Recent seismic activity in this area has been 3-D surveys, although 2-D surveys are occasionally conducted.

Prior to drilling activities, an application for permit to drill (APD) and a site-specific Environmental Assessment (EA) must be approved. APDs subject to site-specific conditions of approval may be more or less restrictive than lease stipulations. Drilling and producing operations are inspected regularly to ensure that conditions of approval are followed. Activities that would occur as a result of authorizing APDs include the application of dust control measures; the restriction of flaring of natural gas; the control of light emissions; and the construction of reservoirs associated with water disposal, compressor stations, product enhancement facilities, and disposal facilities.

Construction and operation of drill sites could result in limited commitment of certain resources. After the subsurface resource is produced and the drill site reclaimed, the surface resource is reestablished to a condition that may be better than the original. Site-specific commitment of resources includes the removal of vegetation and commitment of land surface to roads and well pads during the time that the subsurface resource is being recovered.

When split-estate situations occur, wildlife restrictions for T&E and Special Status Species are applied to both the subsurface estate and to the surface activities because of the federal nexus of the actions. In this case, for example, federal minerals underlie a nonfederal surface and T&E and Special Status Species are protected with wildlife restrictions. Wildlife stipulations for other species not associated with the T&E program would not apply when a split-estate situation occurs (federal minerals/nonfederal surface) and a proposed project is analyzed.

The Bureau develops and implements surface disturbance restrictions by incorporation of conditions of approval in the site-specific analysis. The restrictions vary depending on the type of resource to be protected. Some examples of restrictions include NSO on floodplains, wetlands, and riparian zones; and spatial/timing restrictions adjacent to Greater sage-grouse leks and raptor nests.

Locatable Minerals—All public lands are also open to exploration for locatable minerals, except for those withdrawn to protect other resource values and uses, or those lands with acquired mineral status. The Bureau has management authority over mining claim operations for locatable minerals conducted under the General Mining Law of 1872. These operations are managed using the surface regulations in 43 CFR 3809. Activity authorized under the General Mining Law is not subject to many of the special stipulations that are used in the common variety and leasable mineral programs to protect sensitive resources from surface disturbance caused by mineral development. However they are subject to ESA, the National Historic Preservation Act (NHPA), and all applicable state requirements.

Bentonite, uranium, and gypsum are the principle locatable minerals of the Wyoming Bureau. Other locatable metallic minerals include silver, gold, platinum, cobalt, and other precious minerals. At this time no active metallic mineral mining occurs on Bureau-managed public lands, except for occasional recreational panning in the RMPPA.

Actions associated with commercial locatable minerals may include surface disturbance for mining (including exploration and development); reclamation; and construction of access roads, buildings, and utility lines. Small-scale mining must be approved by a plan of operations and will require either an EA or an Environmental Impact Statement (EIS). All lands must be reclaimed after expiration of mining.

Off-Highway Vehicle—The Bureau implements management in areas designated as closed, limited, or open to OHV use. The Bureau posts signs, develops maps or brochures, and monitors OHV use. OHV use on Bureau-administered lands is limited to existing roads and vehicle routes. Over-the-snow vehicles (snowmobiles) are allowed to go cross-country. By the year 2008, OHV use will be limited to designated roads and vehicle routes, except for those areas identified as open or closed to OHV use in areas larger than one section. The Ferris Mountains, Encampment River, Bennett Mountains and Prospect Mountain

wilderness study areas (WSA) are closed to OHV use. Seasonal closures may be applied in crucial wildlife habitats as needed, including over-the-snow use. In addition OHVs are prohibited when their use will cause resource damage. The Bureau permits OHV events.

The Bureau recognizes the use of bicycles and other human-powered, mechanized conveyances as appropriate recreational activities. Federal regulations do not specifically address management of nonmotorized vehicle use. The Wyoming Bureau has adopted the national OHV strategy to meet local needs. Bicycles will be allowed on the Encampment River Trail within the WSA until such time as it is designated by Congress as a wilderness area. Wheelchairs will be allowed despite designation of use.

Paleontological Resources—The Bureau performs a variety of activities to preserve, protect, and restore paleontological resources. During inventory activities, the Bureau inventories, categorizes, and preserves paleontological resources; conducts field activities; performs excavations; maps and collects surface materials; researches records; and photographs sites and paleontological resources. Inventory data collection activities are used for documentation and development of mitigation plans prior to other resource program surface disturbing activities. Inventory activities commonly entail the use of hand tools, power tools, or heavy machinery. The Bureau's paleontological resource land management activities involve managing sites for scientific and public use, developing interpretive sites, restricting certain land uses, closing certain areas to exploration, prohibiting some surface disturbing activities, stabilizing erosion (e.g., burying exposed sites), preparing interpretive materials, and allowing the collection of certain invertebrate fossils. The Bureau pursues withdrawal of areas from exploration and development of locatable minerals, designates avoidance areas, pursues cooperative agreements, and identifies and interprets paleontological sites.

Hazardous Materials Management—The Bureau's Hazardous Materials Management program provides warnings; secures and disposes of hazardous waste discharged on public lands; reports, secures, and cleans up public lands contaminated with hazardous wastes; uses precautionary measures; establishes precautions; responds to emergencies.

The Hazardous Materials Management program and activities seeks to protect public and environmental health and safety on Bureau-administered public lands, comply with federal and state laws, prevent waste contamination due to any Bureau-authorized actions, minimize federal exposure to the liabilities associated with waste management on public lands, and integrate hazardous materials and waste management policies and controls into all Bureau programs. Hazardous waste sources may be from illegal dumping, abandoned waste, and mine tailings.

Recreation—Recreation management activities include allowing and improving recreational access, building and maintaining developed recreation sites, developing recreation trails, ensuring public safety, protecting the resources, and assessing recreation use on the environment. Recreational activities on Bureau lands include hiking, hunting, mountain biking, floating, fishing, OHV use (including snowmobiles), horseback riding, backpacking, rockhounding, and camping. Large recreational events may be issued Special Recreation Permits. The Bureau authorizes commercial recreation uses.

Recreation site development includes facilities for camping, fishing, and floating; associated signing, road development, and maintenance (for both developed and undeveloped recreation sites); and development of public water sources for recreation facilities.

Recreation program management includes monitoring OHV use and high-use areas, and contacting visitors in the field. The Bureau places signs, identifies hazards, constructs and uses roads for recreation activities, restricts recreational uses where adverse impacts have occurred, and conducts inventories of

recreation resources. The recreation program monitors recreational use, develops management plans, and evaluates recreational potential for future planning and development.

There is the potential for recreational activities to occur year-round in most of the RMPPA, although some parcels would receive minimal use during the winter because of poor access and adverse weather conditions. The numbers of individuals that participate in outdoor recreational activities has been increasing steadily, and, except for hunting, this trend is expected to continue. Visitor use is highest during the summer months.

Special Management Areas—Under the Special Management Areas (SMA) program, the Bureau closes areas where accelerated erosion is occurring; implements logging and heavy equipment use restrictions; evaluates noxious and invasive weed and pest control measures; applies restrictions on ground disturbing and other disruptive activities; develops recreational trails; guides supervised tours; protects petroglyphs, artifacts, and cultural deposits from weathering and vandalism; and pursues land exchanges. The objectives of SMAs are to ensure continued public use and enjoyment of recreation activities while protecting and enhancing natural and cultural values; improving opportunities for high-quality outdoor recreation; and improving visitor services related to safety, information, interpretation, and facility development and maintenance. SMAs within the RMPPA include the Sand Hills Area of Critical Environmental Concern (ACEC)/Proposed JO Ranch Expansion, the Jep Canyon Wildlife Habitat Management Area, the Shamrock Hills Wildlife Habitat Management Area, the Laramie Plains Lakes Wildlife Habitat Management Area, the Blowout Penstemon ACEC, the Continental Divide National Scenic Trail Special Recreation Management Area (SRMA), and the North Platte River SRMA.

Wild and Scenic Rivers Management—The Bureau, under the Wild and Scenic Rivers Act, studied segments of streams throughout the RMPPA to determine their eligibility and suitability for designation as Wild and Scenic Rivers (WSR). The Encampment River reach within the Encampment River WSA was found to be eligible and suitable for WSR designation. The Bureau manages that segment to retain the wild and scenic values until Congress considers the rivers for possible designation as WSRs.

Wilderness Management—The purpose of the interim policy for WSAs is to retain their suitability for Congressional designation as Wilderness. Discretionary uses within or adjacent to WSAs are reviewed to ensure that they do not impair wilderness values. The Adobe Town WSA, Ferris Mountains WSA, Prospect Mountain WSA, Encampment River Canyon WSA, and Bennett Mountains WSA are all located within the RMPPA.

Transportation and Access Management—Transportation and access management activities are generally in support of other resource management programs. Effects due to access are discussed in activities sections and are summarized below.

The Bureau rehabilitates access roads no longer needed, proposes access easement acquisitions, and pursues legal access across private and state lands.

Vegetation Management—Vegetation objectives for the Bureau are to maintain or improve the diversity of plant communities to support multiple uses, such as livestock grazing, wildlife habitat, timber production, watershed protection, visual resources, the reduction in the spread of noxious and invasive weeds, and the protection of important habitats for special status plants species. Projects that may affect T&E plants or animals will be postponed or modified to protect the presence of these species, and consultation with the Service will be initiated.

As part of the vegetation management program, the Bureau conducts prescribed burns, spraying, and light and heavy mechanical treatments; uses species-specific insects and livestock grazing; implements noxious

and invasive weed and pest control programs; and plants vegetation. Light mechanical control includes cutting and thinning with hand tools. Heavy mechanical control includes brushbeating, cutting, and thinning with machinery.

Noxious and invasive weeds are located within the RMPPA. Noxious weeds are listed by the state, whereas invasive weed species are listed by the Bureau (see glossary of RMP). The three types of noxious weeds or invasive weeds control measures used by the Bureau on public lands are chemical, biological, and mechanical. Weed control is conducted in cooperation with Carbon, Sweetwater, Laramie, and Albany County Weed and Pest Districts, permittees, grantors, lessees, and private landowners. Only federally approved pesticides and biological controls are utilized, and all label directions are followed. If herbicides are proposed for use, minimum toxicity herbicides will be used, with appropriate buffer zones along streams, rivers, lakes, and riparian areas, including those along ephemeral and intermittent streams.

Chemical controls include growth regulators, contact herbicides, and inhibitors. The majority of rangeland applications are applied with backpack sprayers; other treatments are applied using aircraft. Chemical treatments to ROWs and oil- and gas-related facilities are applied using vehicle-mounted sprayers and aircraft. Biological controls include using microbiotic organisms (fungus and rusts) and insects (beetles, midges, and wasps) and are applied by hand. Ungulates (goats and livestock) used to control noxious and invasive weeds are herded. Mechanical control is normally performed through hand-pulling and digging, which is not as intrusive as mowing or other machine use.

Sensitive Plants Management—The actions identified above and associated with this program deal with the management and enhancement of identified populations of sensitive plant species and/or unique plant communities.

Visual Resources Management—Through Visual Resource Management (VRM), the Bureau maintains or improves scenic values and visual quality, and establishes VRM priorities in conjunction with other resource values.

A visual resource inventory and classification process is a qualitative analysis performed throughout the resource area. A visual resource inventory provides (1) an inventory tool that portrays the relative visual quality of a landscape, and (2) a management tool that delineates visual protection standards by which surface disturbing activities may occur and establishes guidelines for the rehabilitation of existing projects, facilities, and disturbances. The Bureau lands in the planning area were classified as Class I in the WSAs; Class II in areas adjacent to the Ferris Mountain and Adobe Town WSAs, much of the forest fringe, Seminoe and Pathfinder reservoirs north of the 'checkerboard' area; Class IV in heavily industrialized and coalbearing areas; and Class III in the remainder of the RMPPA.

Effectively, Class I areas prohibit surface disturbances because they are in WSAs. Class I areas preserve the existing character of the landscape, provide for natural ecological changes only, and do not preclude very limited management activity. In Class I areas, the level of change to the characteristic landscape should be extremely low and must not attract attention. Class I areas include primitive areas, WSAs, some natural areas, some WSRs, and other similar areas where landscape modification activities should be restricted.

To retain the characteristics of a Class II rating, management actions or authorizations could occur only if they are properly mitigated. These mitigations must prevent development from attracting the attention of the casual observer. They must adhere to the following limits: the existing character of the landscape should be retained; the level of change to the characteristic landscape should be low; management activities may be seen but should not attract the attention of the casual observer; and any changes should

repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. If a proposal cannot be adequately mitigated to retain the character of the landscape, then modifications to the proposal would be required.

Class III areas partially retain the existing character of the landscape, are areas where changes in the basic elements (form, line, color, or texture) caused by a management activity should not dominate the view of the casual observer, and are areas where changes should remain subordinate to the visual strength of the existing character.

Class IV areas are areas where management activities may dominate the view and be the major focus of viewer attention, and are areas where changes may subordinate the original composition and character. However they should reflect what could be a natural occurrence within the characteristic landscape.

Water Quality, Watershed and Soils Management—The Bureau performs a variety of activities designed to preserve and protect soil, water, and watershed quality. Some of these activities are implementation of watershed plans, identification of heavy sediment loads, monitoring and minimizing soil erosion, evaluating and restricting surface development activities, and monitoring water quality. These activities at times involve field activities and the use of heavy equipment and handtools.

The Bureau watershed management activities include evaluating proposed projects, applying soil management practices, applying seasonal closures, monitoring public drinking water, and completing groundwater studies. Some of these field activities involve the use of heavy machinery and handtools. Field activities can involve developing riparian/wetland exclosures; constructing stream crossings that allow for appropriate sediment and flow passage; practicing stream improvement practices, such as increasing sinuosity in channels by using handtools to construct natural structures that include rock or other natural materials; constructing artificial instream structures using heavy equipment, steel, geotextile fabrics, and other materials; cutting, planting, and seeding to restore function in riparian/wetland areas; implementing pitting; and maintaining water-spreader dikes. Other activities can involve imposing restrictions on activities such as mineral exploration and development, pipelines, power lines, roads, recreation sites, fences, and wells.

Activities associated with soil resources may also include reclamation of abandoned mines and open shafts, removal of waste rock in floodplains or streams, or cleanup of tailings. Soil sampling and surface soil erosion studies may also be conducted. These soil resource-related activities in the RMPPA mainly are in support of other programs.

Through water resource management, the Bureau seeks to maintain or improve surface and groundwater quality consistent with existing and anticipated uses and applicable state and federal water quality standards, provide for the availability of water to facilitate authorized uses, and minimize harmful consequences of erosion and surface runoff. Water resources are also to be protected or enhanced through site-specific mitigation guidelines.

During watershed management activities, the Bureau develops pollution prevention plans; ensures that rights to water-related projects are filed; delineates no-chemical-use buffer zones; designs activities to promote reduction of channel erosion; restricts surface disturbance near water sources and sensitive soils; and improves, maintains, and restores damaged wetlands or riparian areas by restoring hydrologic function. The Bureau also provides technical expertise on other activities, such as livestock ponds and waterfowl monitoring activities, and provides impact analyses of oil and gas development or any surface disturbance projects. The Bureau provides technical expertise in reestablishing floodplains, iron mines, and contoured railroad grades.

The Bureau prohibits surface discharge of produced water in the Colorado River Basin. Surface disturbance is limited in the Encampment River watershed, and new permanent structures are prohibited.

Wildlife and Fisheries Management—Through wildlife and fisheries habitat management, the Bureau maintains and enhances habitat for a diversity of wildlife and fish species and provides habitat for threatened, endangered, candidate, proposed, and special status animal and plant species in compliance with the ESA, Bureau Manual 6840, and approved recovery plans. The Bureau wildlife habitat management program supports population objective levels in the Wyoming Game and Fish Department (WGFD) strategic plan.

Wildlife program activities may include inventory and monitoring, habitat improvement projects, developing stipulations and protective measures, and predator control in coordination with Animal and Plant Health Inspection Service (APHIS) of the U.S. Department of Agriculture (USDA). In BLM, the program operates under the general direction of BLM Manual Section 6830 and the "Animal Damage Management Memorandum of Understanding (MOU) between the USDA-Animal and Plant Health Inspection Service/Wildlife Services (APHIS/WS) and the USDI-Bureau of Land Management (BLM)" of 1995. The latter agreement basically states that APHIS/WS has the lead and principle program responsibilities for animal damage management on public lands administered by the BLM, and the BLM will play the passive role of assuring program review and concurrence with respective land use plans.

Predator control methods amount to the use of trapping, snaring, denning, dog tracking, calling and ground shooting, aerial gunning, and predacide (i.e., M-44 [sodium cyanide]) applications. In limited circumstances, compound 1080 (sodium monofluoroacetate) toxic collars may be used for coyote control. Typically, the "government trapper" responds to a damage control request by traveling to the alleged damage location, verifying the source of the damage, and if verified as predator damage, applies the appropriate control technique. Aerial gunning is simply a matter of flying the suspected damage area in a small, fixed-wing airplane or helicopter and shooting whatever predatory species can be located from the window of the aircraft. Whenever possible, the predator carcasses are collected, and the hides are sold for program revenue. Predator control efforts may take place over a period of a few days to weeks, or even months, until the problem circumstances are relieved.

Rodent control methods are the use of rodenticides (usually zinc phosphide), burrow gassing (usually carbon monoxide cartridges), shooting, and occasionally trapping. Rodent control is sometimes performed by the local, county weed and pest agents, or recreational shooters. Typically, the control agent responds to a rodent damage control request by traveling to the alleged damage location, verifying the source of the damage, and if verified as rodent damage, applies the appropriate control technique. When rodenticides are used, pre-baiting of burrows may take place for a few days before the actual poison is dispensed. Rodent control efforts may take place over a period of a few days to weeks, or even months, until the problem circumstances are relieved.

Inventory and monitoring include habitat assessments and species surveys and are used to assess the effectiveness of the implementation of timing stipulations, reducing conflicts between species and other activities, and for appropriate mitigation. In addition, inventory and monitoring are used to identify and describe habitat requirements and life history characteristics of T&E and Special Status Species.

The wildlife program supports other resources, including fire and fuels; forestry; minerals, including leasable, locatable, and common variety mineral exploration; recreation; cultural and paleontological resources; lands and realty; and wild horse programs activities.

Habitat improvement projects include but are not limited to the development of water sources, construction and maintenance of fences, the management of other resource activities to conserve forage

and protect habitat, the improvement of forage production and quality of rangelands; and vegetative treatments (prescribed fires, mechanical, chemical, biological treatments, cutting, thinning, planting, seeding, and pitting). Other wildlife management activities include, but are not limited to, introducing species, developing islands, modifying existing projects, constructing artificial structures; constructing guzzlers; implementing road closures (permanent and seasonal); constructing exclosures; using heavy equipment and handtools; and closing areas to leasable, locatable, and common variety minerals for the protection of wildlife species.

In addition other wildlife management activities include but are not limited to improving fisheries and wildlife habitat; documenting resource damage; implementing stream improvement practices; chemically controlling non-native fish; using electroshocking for sampling fish communities and for population studies; constructing instream barriers to protect species from non-native invaders; installing revetments and fish passage structures, log over-pours, and gabion baskets; cabling of junipers; placement of large boulders for instream fish habitat; and restoring streams to a state of dynamic equilibrium by utilizing restoration techniques.

Wild Horse Management—The Bureau wild horse management program uses herding, corralling, transporting, monitoring, and roundups for wild horse management. Land use plans (LUP) guide the management of wild horses. In an LUP, the Bureau uses monitoring data to determine appropriate management level (AML). The Bureau manages wild horse populations to maintain viable herds. Considerations include how many animal unit months (AUM) the range can support, trends in utilization, and public input. The Bureau wild horse management specialists coordinate with wildlife biologists and archeologists to reduce and/or eliminate impacts to wildlife resources. The Bureau constructs and uses short-term temporary facilities (traps and holding facilities) and long-term permanent facilities (corrals, boundary fences, and water development). There are gatherings of wild horses that use helicopters and wranglers to round up the wild horses. Traps consist of wings (50–60 steel posts) that funnel down to portable corrals, 60 × 30 feet (18.3 × 9.14 m) in size.

It should be noted that the presence of wild horses within the RMPPA are mandated by Congress under the Wild Horse and Burro Act. Wild horses are similar to wildlife and are managed similar to wildlife species; it should be noted that when the wild horse population increases above objectives the BLM removes excess horses. Unlike livestock, the BLM does not manage the activities of the horses themselves; therefore, any affects that the horses may have on other resources based on their presence are not at the complete discretion of the BLM.

Coordination/Conservation Measures

As part of the affected environment for the RFO RMP, Section 7(a)(1) of the ESA requires the federal agency (i.e., the Bureau) to utilize all of its authorities in furthering the purposes of the Act by implementing programs for the conservation of listed T&E species. To meet the requirements of Section 7(a)(1), the Bureau needs to consider conservation programs for the management of listed T&E species separate from any consultation requirements for actions affecting other Special Status Species (candidate and proposed species). Those conservation programs that are adopted need to be incorporated into the approved RMP. These actions would be implemented at a large scale and/or at a project-specific level.

Conservation measures serve several purposes. They can (1) present ways the Bureau can assist species conservation in furtherance of statutory responsibilities, (2) minimize or avoid the adverse impacts of a proposed action on a T&E or Special Status Species, and (3) identify and recommend studies aimed at improving the understanding of a species biology or ecology.

Listed T&E and Special Status Species management will be addressed in four primary ways:

(1) Through conservation actions identified as part of a species listing package, as Reasonable and Prudent measures recommended in the biological opinion (BO) from the Service in response to a BA, and through species protection measures determined through collaborative interagency and multidiscipline efforts.

(2) The Bureau-WY Field Offices incorporate the "WY BLM Mitigation Guidelines for Surface-Disturbing and Disruptive Activities." These guidelines (Appendix 1 of the DEIS RMP) state that prior to conducting activities in known or suspected Critical or essential habitat, the Bureau will require inventories or studies in accordance with the Bureau and/or the Service guidelines to verify the presence or absence of T&E and Special Status Species or assume species presence. In the event the presence of one or more of these species is verified, the operation plans of a proposed action will be modified to include the protection of the species and its habitat as necessary. Possible protective measures may include seasonal or activity limitations, or other surface management and occupancy constraints.

(3) The "Standards for Healthy Rangelands (1997)." As stated, the "standards apply to all resource uses on public lands." However, the Guidelines (Appendix 8 of the DEIS RMP) "apply specifically to livestock grazing management practices on the Bureau-administered public lands." The development and application of these standards and guidelines are intended to achieve the following four fundamentals of rangeland health: (1) proper functioning of air and watersheds; (2) proper cycling of air, water, soil nutrients, and energy; (3) attainment of state water quality standards; and (4) sustained maintenance and management of the native fauna and flora of the area, including Special Status Species. These fundamental goals are achieved through inventory of the natural resources, appropriate management actions aimed at these resources, monitoring and evaluation of the effectiveness of the management actions, and land management adjustments as necessary.

(4) "Special Status/Sensitive Species Management," Bureau Manual 6840, directs RMPPA managers to implement Special Status/Sensitive Species programs (Appendix 10 of the DEIS RMP) within their area of jurisdiction by (1) conducting and maintaining current inventories, including surveys for occupancy, for Special Status/Sensitive Species on public lands; (2) providing for the conservation of Special Status Species in the preparation and implementation of recovery plans with which the Bureau has concurred, interagency plans, and conservation agreements; (3) ensuring that all actions comply with the ESA, as amended (50 CFR 402), its implementing regulations, and other directives associated with conserving Special Status/Sensitive Species; (4) coordinating RMPPA activities with federal, state, and local groups to ensure the most effective program for Special Status/Sensitive Species conservation; (5) ensuring actions are evaluated to determine if Special Status/Sensitive Species objectives are being met; (6) ensuring that all actions authorized, funded, or carried out by the Bureau follow the interagency consultation procedures, as outlined in 50 CFR Part 402; (7) ensuring that results of formal Section 7 consultations, including terms and conditions in incidental take statements, are implemented. Implementation will ensure that actions authorized by the Bureau do not contribute to the need for a species to become listed.

The Bureau is required to implement measures that will be utilized to avoid, minimize, or reduce potential impacts to T&E and Special Status Species associated with implementation of the proposed RMPPA. Additional environmental protection measures specifically designed for other resources, such as soils, vegetation, wetlands, and visual resources, also avoid, minimize, or reduce potential impacts to T&E and Special Status Species. Site-specific mitigation measures will be identified by RMPPA biologists at the project level (e.g., during APD and ROW application review processes) to protect T&E and Special Status Species. To ensure compliance with site-specific protection measures presented in this BA and in

project applications, the Bureau and/or a project proponent in coordination with the Bureau will assess potential impacts to T&E and Special Status Species during construction and/or implementation of those projects. Assessments will be on a case-by-case basis during field development.

The Bureau will implement or require further protection measures for T&E and Special Status Species, pursuant to Instruction Memorandum No. WY-99-24, by conducting inventories, implementing protection measures, and monitoring effects of authorized actions on T&E and Sensitive Species and their associated habitats (Table 1). These measures apply to all Bureau actions, including but not limited to range management, recreation, mineral development, realty actions, and forestry practices. In addition, the Bureau may recommend that the Wyoming Oil and Gas Conservation Commission and State Land Board adopt policies to ensure ESA compliance during well permitting on state and private lands.

Table 1. Bureau Requirements for Inventory, Protection, and Monitoring of T&E/Special Status Species

Bureau Requirements for Inventory, Protection, and Monitoring of Threatened, Endangered, Candidate, Proposed, and Sensitive Species, Rawlins Field Office, Wyoming, 2004	
Land Status	**Bureau Requirements[1]**
Bureau surface/Bureau subsurface	Conduct data gathering, avoid or reduce impacts as appropriate, and monitor. Early coordination and consultation with the Service to benefit the species will be conducted on a case-by-case basis.
Bureau surface/non-Bureau subsurface	Conduct data gathering, avoid or reduce impacts as appropriate and monitor. Early coordination and consultation with the Service to benefit the species will be conducted on a case-by-case basis.
Non-Bureau surface/Bureau subsurface[2]	Request landowner permission to access lands for inventory and, if granted, conduct data gathering on affected areas and require avoidance or reduction of impacts, and monitor as appropriate. If permission is not granted, the Bureau will require project proponents to obtain access through appropriate legal action and, if obtained, conduct data gathering on affected areas and avoid or reduce impacts, and monitor as appropriate. If legal access is not obtained, no onsite data gathering will be conducted, and all analyses will be performed using alternate methods, and so stated in appropriate analysis document. If it is suspected that T&E and Special Status Species or their habitats may be affected, early coordination and consultation with the Service to benefit the species will be conducted on a case-by-case basis.

Bureau Requirements for Inventory, Protection, and Monitoring of Threatened, Endangered, Candidate, Proposed, and Sensitive Species, Rawlins Field Office, Wyoming, 2004	
Land Status	**Bureau Requirements[1]**
Non-Bureau surface/non-Bureau subsurface[3]	If it is suspected that T&E and Special Status Species or their habitats may be affected, early coordination and consultation with the Service to benefit the species will be conducted on a case-by-case basis.

[1] The Bureau may also require project proponents to obtain appropriate T&E and Special Status Species resource data.
[2] For actions that are a direct result of the subsurface estate value (e.g., oil and gas exploration and development).
[3] For actions that are not a direct result of the subsurface estate (e.g., ROWs).

The Bureau has statutory authority under the Mineral Leasing Act of 1920, the Mineral Leasing Act for Acquired Lands, and the Federal Land Policy and Management Act of 1976 to take reasonable measures to avoid or minimize adverse environmental impacts that may result from federally authorized mineral lease activities. This authority exists regardless of whether or not the surface is federally owned.

All of the proposed applicant-committed species protection measures identified in this BA will be implemented on all federal lands under the Preferred Alternative. Implementation of these measures on state and private lands, where split-estate exists and a federal nexus occurs, will also comply with this BA. Development activities on all lands will be conducted in accordance with all appropriate federal, state, and county laws, rules, and regulations.

Specific conservation measures are identified for each species in the Description of the Affected Environment section. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of T&E and Special Status Species. Exceptions, waivers, and/or modifications can be applied to proposed projects; however an exception will not be authorized for an action if it changes the effects determination for a species based on the proposed action. To date there have been very few exceptions granted for T&E species, and very few to none are planned in the future. In addition, the following general conservation measures for all T&E and Special Status Species will be applied:

- RMPPA biologists will conduct surveys (following established protocol) or assume species presence for all likely affected T&E and Special Status Species habitat, or potential habitat, prior to authorizing surface disturbing activities. Proposed projects will be designed and locations selected to minimize disturbances to species and habitat, and if avoidance is not possible, the Bureau will reinitiate consultation with the Service if the effects determination is different than that stated in this BA. Projects will not be authorized during critical time periods to reduce impacts to these species. Early coordination with the Service to benefit the species will be conducted on a case-by-case basis. When project proposals are received, BLM will initiate coordination with the FWS at the earliest possible date so that both agencies can advise on project design. This should minimize the need to redesign projects at a later date to include species conservation measures, determined as appropriate by the FWS.
- Areas with high erosion potential and/or rugged topography (i.e., steep slopes [>25%], stabilized sand dunes, floodplains, erosive and sandy soils) will be avoided in T&E and Special Status Species habitat, unless it benefits the habitat for a T&E species.

- Roads that have the potential to impact T&E and Special Status Species and are not required for routine operations and maintenance of developed and abandoned projects will be reclaimed as directed by the Bureau. As necessary these roads will be permanently blocked, recontoured, reclaimed, and revegetated to benefit habitat for T&E and Special Status Species.

- Construction activities located within potential and/or known habitat for T&E and Special Status Species will be minimized through construction site management by utilizing previously disturbed areas, using existing ROWs, and designating limited equipment/materials storage yards and staging areas to benefit habitat for T&E and Special Status Species.

- To ensure protection of migratory birds and wildlife, reserve, workover, and flare pits and other locations potentially hazardous to wildlife will be adequately protected by netting, flagging, and/or fencing as directed by the Bureau to prohibit wildlife access.

- To avoid collisions and electrocution of raptors and other avifauna, any power line construction will follow recommendations by the Avian Power Line Interaction Committee (APLIC) (1994, 1996). Power lines will be placed underground and/or in locations necessary to avoid impacts to T&E and Special Status Species on a case-by-case basis.

- Consultation and coordination with the Service will be conducted as necessary for the movement, removal, and/or establishment of raptor nests, and all permits required will be obtained.

- All production facilities, including compressor and water disposal facilities, will be muffled and maintained so that the noise level at significant habitat sites for T&E and Special Status Species (e.g., bald eagle nests, habitat for species that rely on aural cues for successful breeding) will not exceed 49 dBAs.

- RMPPA policy for OHV restrictions to existing/designated roads and vehicle routes or closures, if required, will be implemented to protect plant populations and wildlife habitat.

- Construction activities located within identified 100-year flood plains, 500 feet of open water and/or 100 feet of intermittent or ephemeral channels in potential and/or known habitat for T&E and Special Status Species will be avoided. Stream crossings for roads and pipelines will be constructed during the period of lowest flow (i.e., late summer or fall) and perpendicular to flow. No surface water or shallow groundwaters in connection with surface waters will be utilized for proposed projects. Proper erosion control techniques, such as water bars, netting, riprap, and mulch would be implemented.

- Pesticide applications and biological control agents will be allowed within known T&E and Special Status Species habitat on a case by case basis. Where possible, biological control of pests would be used rather than chemical control. Where needed, pesticide use would be applied by hand within 1/4-mile of habitat and only in cases where insect or noxious and invasive weed outbreaks have the potential to degrade area ecological health. Outside the 1/4-mile buffer, aerial application of pesticides would be carefully planned to prevent drift. The Bureau shall work with APHIS and the Service to select a pesticide and method of application that will most effectively manage the infestation and least affect the species.

- Riparian habitats will be maintained, improved, or restored to provide wildlife habitat, improve water quality, and enhance forage conditions. When planting or seeding vegetation in areas identified as T&E or Special Status Species habitat, only native species will be selected.

- In the event a T&E species is found, killed, or injured during project activities, or a dead individual is encountered, the Service, Wyoming Field Office (307-772-2374), and the Service Law Enforcement Office (307-261-6365) will be notified within 24 hours of discovery.

- The Bureau will participate in development of species-specific recovery plans in coordination with the Service and other agencies. Populations and habitat on Bureau-administered lands will be monitored to determine if recovery objectives are being met.
- Bureau-administered public lands that contain identified habitat for T&E species will not be exchanged or sold, unless it benefits a species.
- The Statewide Programmatic BAs and Statewide Programmatic BOs authorized for each species, including all of the reasonable and prudent measures and terms and conditions, will be implemented for the RMPPA. Conferencing and consultation with the Service would occur for authorized activities that would potentially affect the habitat for all threatened, endangered, candidate, and proposed species within the RMPPA.

Description of the Affected Environment

The following information identifies biological data on listed species, including Special Status Species that are present, or have the potential to be present, within the RMPPA. Information includes the listing status, species description, and life history,

Black-footed Ferret (*Mustela nigripes*)

Listing Status: Federal–Endangered, 1967

Species Description

The black-footed ferret is a member of the weasel family (*Mustelidae*), which includes the skunk, badger, fisher, marten, otter, mink, wolverine, and weasel. Black-footed ferrets have a long thin body, short legs, and a very flexible spine, allowing them to run through small tunnels and turn in tight spaces. Adults are 18 to 22 inches (0.46 to 0.55m) long and weigh between 1 and 2.5 pounds (0.450 to 1.135 kg). Ferrets live alone except during the breeding season. The kits are born in May or June, usually in litters of three or four.

Larger than weasels, black-footed ferrets are long, slender-bodied animals similar in size to a mink. They are characterized by a brownish-black mask across the face, a brownish head, black feet and legs, and a black tip on the tail. The middle of the back has brown-tipped guard hairs that create the appearance of a dark saddle.

Life History

The black-footed ferret is closely associated with prairie dogs, depending almost entirely on the prairie dog for its survival. The black-footed ferret's diet may also contain some other small mammals and birds. Potential areas of ferret habitat can be delineated because of the ferret's association with prairie dogs. The RMPPA is within the range of black-tailed and white-tailed prairie dogs, and ferrets may occur within colonies of this species.

The black-footed ferrets' body adaptations allow them to live underground in prairie dog colonies, where the temperature is more uniform than on the surface, where it is easier to conserve water, and where the ferrets are protected from surface predators. Potential predators include badgers, coyotes, bobcats, golden eagles, great-horned owls, ferruginous hawks, and domestic dogs. Primarily nocturnal, ferrets spend much of their time below ground and are rarely seen during daylight hours. This behavior is probably one of the reasons for so few sightings recorded in the RMPPA and elsewhere. Black-footed ferrets are strong and limber, which allows them to catch and kill prey larger than themselves.

The Service has determined that, at a minimum, potential habitat for the black-footed ferret must include a single white-tailed prairie dog town or complex of greater than 200 acres (80.9 hectares) and black-tailed prairie dog town or complex greater than 80 acres (32.4 hectares), or a complex of two or more neighboring prairie dog towns, each less than 4.3 miles (6.9 km) from the other and totaling 200 (80.9 hectares) acres for white-tailed prairie dogs and 80 acres (32.4 hectares) for black-tailed prairie dogs and whose density meets or exceeds 8 burrows per acre (0.4 hectares) (USFWS 1989). Black-footed ferret habitats are directly associated with the presence of prairie dog colonies. Grassland plains are the predominant habitats associated with both the ferret and prairie dog.

Population Distribution

Black-footed ferrets are the only ferrets native to North America. They have lived in North America for at least 30,000 years and have lived everywhere that prairie dogs have lived. At one time, black-footed ferrets and prairie dogs ranged throughout the Great Plains and intermountain basins of the Rockies, from Canada to Mexico. The present range is unknown, but it is certainly much smaller than the historic range. Several records (mostly unverified) from Montana, North Dakota, South Dakota, Nebraska, Oklahoma, Kansas, Colorado, Wyoming, and New Mexico were reported in the 1973 Proceedings of the Black-footed Ferret and Prairie Dog Workshop, September 4–6 (Clark et al. 1983).

Black-footed ferrets were considered extinct until a small population was discovered near Meeteetse, Wyoming in 1981. Following outbreaks of distemper, surviving black-footed ferrets were brought into captivity, and a captive breeding program was initiated. Black-footed ferrets were reintroduced in the Shirley Basin of central Wyoming in 1991 (See "Black-footed Ferret Nonessential Experimental Population in Shirley Basin"). This reintroduction effort continues with the aid of supplemental releases when possible.

RMPPA Distribution

Populations of black-footed ferrets are undetermined in the RMPPA. There are known populations of black-footed ferrets located within the Shirley Basin area; they are identified as a nonessential experimental population. The Service has conducted some surveys and prairie dog colony inventories in the RMPPA since 1981. Reintroductions of ferrets began in 1991 with the release of a group into the Shirley Basin area. Since then, 228 ferrets have been released there. Successful reproduction in the wild has taken place. Biologists stopped releasing ferrets in the Shirley Basin after 1995 because of disease concerns and decreasing habitats. Other ferrets within the RMPPA include seven sightings, with the latest of these occurring in June 1977, about five miles north of Rawlins, Wyoming, on State Highway 287 (USDI-BLM, 2000).

There have been numerous sightings of black-footed ferrets throughout the RMPPA over the decades. Clark (1978) reports 4 observations of black-footed ferrets near Rawlins, 12 observations near Riverside, 5 observations near Saratoga, 19 observations near Laramie, 6 observations near Medicine Bow, and 5 observations near the vicinity of Rock River, Wyoming, from 1902–1977.

Two black-footed ferret sightings and the discovery of a partially buried black-footed ferret skull have been recorded in the Continental Divide/Wamsutter II Natural Gas Project EIS area (CD/WII EIS area) located north and south of Wamsutter, Wyoming. There have been historical sightings of ferrets in this area during the following listed years: (1) July 1972—two young ferrets were seen in the southern portion of the area south of I-80, (2) August 1975—a ferret was observed in saltbush habitat in the northern portion of the area, and (3) August 1981—a partially buried skull was found in the northeastern portion of the area.

Numerous black-footed ferret surveys have been conducted throughout the RMPPA for a diversity of proposed projects and are on file at the RFO. These surveys include but are not limited to projects for natural gas pipelines, 2-D and 3-D seismic lines, coalbed methane pods, coal development areas, access roads, well pads, reserve pits, water pipelines, fiber optic lines, airport expansion, power lines, highway resurface projects, substation construction, ancillary facilities for oil and gas development, and U.S. Bureau of Reclamation lands. WGFD has compiled black-footed ferret sighting reports, which include areas within the RMPPA. Surveys that have been conducted within the RMPPA throughout the last 4 decades, from 1978 to 2003, are summarized in Table 2, and they have resulted in a range of findings. Generally, no black-footed ferrets or ferret signs have been found; however in some cases biologists have found skulls that have been identified as black-footed ferret, and they aged the skulls to determine potential years of activity.

Table 2. Black-footed Ferret Surveys in the Rawlins Field Office Area, 1978–2002

Project Location	Date of Surveys	Survey Method	Survey Results
T. 17–18 N., R. 94 W.;T. 19 N., R. 96 W.	Aug.–Sept. 2003	Nocturnal-spotlight	No ferret or sign observed
T. 13–15 N., R. 97–99 W.	June–July 2002	Nocturnal-spotlight	No ferret or sign found, except skull found
T. 16 N., R. 91 W.	July 2002	Nocturnal-spotlight	No ferret or sign found
T. 23 N., R. 85 W., sec. 2–5, 9–10; T. 24 N., R. 85 W., sec. 27, 33–35	Jan.–March 2002	Diurnal searches	No ferret or sign found
T. 17 N., R. 93 W., sec. 35–36; T. 16 N., R. 93 W., sec. 2–3, 10–15, 23–25	Sept.–Oct. 2001	Nocturnal-spotlight	No ferret or sign found
T. 18 N., R. 93 W., sec. 20–22, 28–29, 32–33; T. 17 N., R. 93 W., sec. 4–5, 8–9	October 2001	Nocturnal-spotlight	No ferret or sign found
T. 18 N., R. 93 W., sec. 18–20, 29	August 2001	Nocturnal-spotlight	No ferret or sign found
T. 26 N., R. 90 W., sec. 14, 23–25, 36; T. 26 N., R. 89 W., sec. 31; T. 25 N., R. 89 W., sec. 6	September 2001	Nocturnal-spotlight	No ferret or sign found
T. 16 N., R. 91 W., sec. 9, 16–17, 20	September 2001	Nocturnal-spotlight	No ferret or sign found
T. 15 N., R. 91 W., sec. 4–8, 16	August 2001	Nocturnal-spotlight	No ferret or sign found
T. 16 N., R. 93 W., sec. 2, 11	Sept.–Oct. 2001	Nocturnal-spotlight	No ferret or sign found
T. 16 N., R. 91 W., sec. 9, 16–17, 20	October 2000	Nocturnal-spotlight	No ferret or sign found
T. 17 N., R. 93 W., sec. 25, 36; T. 17 N., R. 92 W., sec. 31	August 1994	Nocturnal- spotlight	No ferret or sign found
T. 19 N., R. 96 W., sec. 7, 9–10; T. 19	September 1991	Nocturnal - spotlight	No ferret or sign found

Project Location	Date of Surveys	Survey Method	Survey Results
N., R. 97 W., sec. 11–12			
T. 16 N., R. 93 W., sec. 1, 11–12	August 1990	Nocturnal - spotlight	No ferret or sign found
T. 16 N., R. 93 W., sec. 2–3, 10–11	August 1990	Nocturnal-spotlight	No ferret or sign found
T. 17 N., R. 84 W., sec. 14–16, 21–22	October 1990	Nocturnal-spotlight	No ferret or sign found
T. 23 N., R. 94–95 W.; T. 24 N., R. 94–95	August 1989	Nocturnal-spotlight Diurnal searches	No ferret or sign found
T. 24 N.,R. 78 W.	Feb.–March 1898	Diurnal searches	No ferret or sign found
T. 26 N., R. 84 W., sec. 11–14	Dec.–Feb 1989	Diurnal searches	No ferret or sign found
T. 21 N., R. 79 W., sec. 23–26, 35–36	Feb.–March 1989	Diurnal searches	No ferret or sign found
T. 26 N., R. 89 N., sec. 8, 17–18; T. 26 N., R. 90 N., sec. 2, 10–11, 14–15	August 1985 May 1988	Nocturnal, modified guidelines	No ferret or sign found
Milepost 0–112	July–Aug. 1985	Nocturnal-spotlight	No ferret or sign found
T. 28 N., R. 80 W., sec 4–5, 8–9; T. 28 N., R. 81 W., sec. 12–14	Sept.–Oct. 1985	Nocturnal-spotlight	No ferret or sign found
T. 26 N., R. 89-92; T. 27 N., R. 89–92	August 1985	Nocturnal-spotlight Diurnal searches	No ferret or sign found
Coal areas: Corral Canyon, Cow Creek, Cedars, Savery Lease, Red Desert	June–Sept. 1981	Diurnal searches Nocturnal-spotlight	No ferrets observed; skull found (Red Desert)
Pathfinder and Seminoe reservoirs and borders	July–Sept. 1980	Diurnal searches Nocturnal-spotlight	No evidence of ferret
Pathfinder and Seminoe reservoirs and borders	September 1979	Diurnal searches Nocturnal-spotlight	No ferrets or sign found, except skull found
Hanna and China Butte, Coal Areas	Feb.–Sept. 1979	Diurnal searches Nocturnal-spotlight Dogs used	No live ferrets found; three skulls found (Hanna)
Red Rim, Seminoe 1, Hanna South, Medicine Bow Bypass, Carbon Basin Coal Areas	June–Sept. 1978	Diurnal searches Nocturnal-spotlight	No ferrets found; trenching found, Carbon Basin site
South and northeast Medicine Bow; northeast Rock River	March–Aug. 1978	Diurnal searches Nocturnal-spotlight Track stations with acoustic and scent lures	One black-footed ferret skull, five trenches, one ferret scat found

Reproduction and Survivorship

Black-footed ferrets have not been observed mating in the wild, but captive black-footed ferrets have been observed breeding in March and early April. Support for believing that wild black-footed ferrets breed during this period comes from an adult male black-footed ferret road-killed in early March in northwestern Wyoming, which showed spermatogenesis. Further evidence comes from winter snow tracking information, which showed significant increases in movements by individuals during this period.

The time of parturition is also unknown but is suspected to occur in May and early June. Captive black-footed ferrets have a known gestation period of 42–45 days, and litter size ranged between 3–4 in Wyoming and 3–5 in South Dakota. In Wyoming, black-footed ferret family units remain together until late August. At this time, juveniles still rely on their dam for food to some extent but are frequently separated from siblings in different burrows. The young spend more and more time on their own and are independent by mid-September (Clark et. al. 1983).

Management Status Recovery and Conservation Planning

The national recovery objective developed by the Service in 1998 for this species highlights several actions to ensure the immediate survival of the black-footed ferret. These actions included increasing the captive population of black-footed ferrets to a census size of 200 breeding adults by 1991; establishing a prebreeding census population of 1,500 free-ranging black-footed ferret breeding adults in 10 or more populations, with no fewer than 30 breeding adults in any population, by the year 2010; and encouraging the widest possible distribution of reintroduced black-footed ferret populations.

The conservation measures applicable to Bureau-authorized actions for the black-footed ferret include both habitat conservation measures and species conservation measures. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the black-footed ferret. These measures are listed below.

Habitat Conservation Measures

1. If prairie dog towns/complexes suitable as black-footed ferret habitat are present at the proposed project level, attempts will be made to locate all project components at least 50 meters (up to 200 meters pursuant to the Federal Land Policy and Management Act [FLPMA]) from these towns/complexes to avoid direct impact to towns.

2. All white-tailed prairie dog towns/complexes greater than 200 acres in size and black-tailed prairie dog towns/complexes greater than 80 acres will be avoided. If avoidance is not possible, these areas will be assessed and mapped at the proposed project level. Associated burrow densities of potentially affected towns will be determined, and, when habitat is present, a black-footed ferret survey will be conducted pursuant to the Service- and Bureau-approved techniques.

Species Conservation Measures

1. Information shall be provided and posted in common areas and circulated in a memorandum among all employees and service providers. This information shall illustrate the black-footed ferret and its sign; describe morphology, tracks, scat, skull, habitat characteristics, behavior, current status, and causes of decline; and the relationship between project development and impacts to black-footed ferrets, especially concerning canine distemper. Employees will not have pets on worksites within potential or known ferret habitat, because canine distemper can be transmitted to black-footed ferrets.

2. If any black-footed ferrets or their sign are found within a prairie dog town or complex previously determined to be unsuitable for or free of ferrets, all previously authorized, project-related activities (or actions on any future application that may directly, indirectly, or cumulatively affect the colony/complex) ongoing in such towns or complexes shall be suspended immediately, and Section 7 consultation reinitiated with the Service. The Bureau shall ensure that ferret surveys or other appropriate actions are conducted at such locations.

3. Observations of black-footed ferrets, their sign, or carcasses on the project area and the location of the suspected observation, however obtained, shall be reported within 24 hours to the appropriate Bureau wildlife biologist and field supervisor of the Service office in Cheyenne, WY, 307-772-2374. Observations will include a description, including what was seen, time, date, exact location, and observer's name and telephone number. Carcasses or other suspected ferret remains shall be collected by the Bureau or Service employees and deposited with the Service's Wyoming Field Office.

4. When project proposals are received for areas that still require black-footed ferret surveys (i.e., that are not block-cleared, Service letter of February 2, 2004) and that meet potential habitat criteria as defined by the Service guidelines (USFWS 1989), the Bureau shall initiate coordination with the Service at the earliest possible date so that the Service can provide input. This should minimize the need to redesign projects at a later date to include black-footed ferret conservation measures determined as appropriate by the Service.

5. If suitable prairie dog town/complex avoidance is not possible, surveys of towns/complexes for black-footed ferrets shall be conducted in accordance with the Service guidelines and recommendations. This information shall be provided to the Bureau and to the Service in accordance with Section 7 of the Act and the Interagency Cooperative Regulations.

6. The Bureau periodically will evaluate potential habitat for translocation or reintroductions in coordination with the Service and in compliance with the recovery/reintroduction measures in the Programmatic Black-footed Ferret BA.

Best Management Practices

1. The Bureau should conduct research to evaluate the impacts of Bureau-authorized activity on black-footed ferret habitat.

2. The Bureau should continue to follow the recovery plan and review activities to ensure consistency and compliance.

3. When possible, new prairie dog towns would be allowed to become established on public lands.

4. When possible, new access roads would avoid intersecting prairie dog colonies.

5. When available, Service fact sheets would be posted in common areas and circulated in a memorandum among all Bureau employees and service providers. Fact sheets would illustrate the black-footed ferret and its sign; and describe morphology, tracks, scat, skull, habitat characteristics, behavior, current status, and causes of decline.

6. Recreational shooting of prairie dogs would be discouraged on public lands.

7. Develop prairie dog management plans with ongoing monitoring and protection of prairie dog towns and complexes.

8. Follow the guidelines outlined in the Wyoming Black-tailed Prairie Dog Management Plan (Wyoming Black-tailed Prairie Dog Working Group 2001) and the White-tailed Prairie Dog Conservation Assessment (Seglund et al 2004). Encourage Wyoming Game and Fish Commission to remove unprotected status on prairie dogs and provide regulatory mechanisms.

9. Establish land stewardship agreements with other agencies and/or private landowners where large (1,000 acres) prairie dog towns or complexes exist. These agreements can control potential uses that may be detrimental to prairie dogs and their habitats while preserving the landowner's intent for use.

10. Avoid sale or exchange of lands and attempt to acquire parcels with prairie dogs on them, especially those that have potential as part of a black-footed ferret reintroduction effort.

11. Initiate to the extent feasible land exchanges in the Shirley Basin areas to increase the land area in federal ownership.

12. Eliminate livestock grazing practices that degrade habitat in prairie dog colonies. Reduce or eliminate grazing during drought, avoid vegetation stand conversions that have been shown to be detrimental to prairie dogs, and reduce or eliminate any other suspected ecosystem-degrading grazing practices.

13. Encourage, support, and/or establish a prairie dog research program addressing issues such as the effect of shooting and oil and gas development on prairie dogs, sylvatic plague control, and population viability analysis.

14. Because knowledge of the effects of resource extraction on white-tailed prairie dog populations is limited, monitoring at sites before, during, and after energy development is recommended (Seglund et al. 2004).

15. If geologically and technically feasible, drill multiple wells from the same pad using directional (horizontal) drilling technologies (up to 16 wells per pad, as technologically feasible).

16. Avoid further oil and gas exploration and development in occupied prairie dog colonies. Apply NSO stipulations to all occupied and recovery prairie dog habitat. Avoid seismic activity in occupied or recovery prairie dog habitat.

Black-footed Ferret Nonessential Experimental Population in Shirley Basin

Listing Status: Federal—Nonessential Experimental Population, 1991

Species Description

The Service, in cooperation with WGFD, reintroduced captive-raised black-footed ferrets (*Mustela nigripes*) into the 2,068-square-mile Shirley Basin/Medicine Bow Management Area (Shirley Basin) in 1991. This population has been designated a nonessential experimental population in accordance with the ESA. The population is managed in accordance with provisions of the special rule for this species.

Life History

A life history description of black-footed ferrets is described above under "Black-footed Ferret." The Shirley Basin ferrets were originally captive-raised; however at this time there are naturally occurring ferrets within the Shirley Basin ecosystem.

Population Distribution

The black-footed ferret was listed in 1967 as endangered. The last known wild population near Meeteeste, WY, was devastated by canine distemper in 1985–1986. Eighteen surviving black-footed ferrets were taken into captivity in 1986–1987 to prevent extinction and to serve as founder animals in a captive propagation program aimed at eventually reintroducing the species into suitable habitat in the wild. The captive breeding program went from 18 animals in 1986 to over 300 animals in 1991 (USFWS 1991a).

RMPPA Distribution

The Shirley Basin/Medicine Bow Management Area (Shirley Basin) is the primary recovery area within the experimental population. The Shirley Basin area includes approximately 729,184 acres of private land, 197,601 acres of public land, and 43,241 acres of state trust lands as part of the total of 1,323,856 acres in Carbon, Albany, and Natrona counties. The black-footed ferret habitat is associated with 74 of the 121 tracts of private lands. The highest white-tailed prairie dog concentrations since 1989 have been in the Shirley Basin area (USFWS 1991a).

Reproduction and Survivorship

There were 228 black-footed ferrets released in the Shirley Basin area from 1991 to 1994. The black-footed ferret release program was terminated in 1994 when the prairie dog population fell below 50% of the 1991 base population. Spotlight surveys for black-footed ferrets were conducted from 1991–1996 and again in 2000–2001. Black-footed ferret surveys were not conducted in 1997–1999.

There were 5 ferrets observed in 1997 and 15 ferrets observed in 2000 (including 4 litters of kits). In 2001, a minimum of 19 black-footed ferrets were observed, including 3 litters with at least 10 juveniles (WGFD 2002). In 2001, the WGFD estimated that there are 27,000 acres of prairie dog towns in the Shirley Basin area. In addition the agency estimated that there are approximately 24–25 black-footed ferret families, or about 100 black-footed ferrets (Apple, 2001).

The overall downward trend in active prairie dog burrows and ferrets may have been due to a combination of several factors. Sylvatic plague, active in Shirley Basin for several years, may or may not have been the primary cause of decreasing prairie dog numbers (WGFD 2002). In 2001, 2 out of 200 mice tested positive for sylvatic plague in the area, suggesting that the plague seems to have abated for the time being (Apple 2001). Four out of 22 coyotes tested positive for canine distemper, however in 2001 distemper did not appear to cycle for that particular year (Apple 2001). In the near absence of sylvatic plague, the population of prairie dogs has become relatively stable from 1997 to 2000, though drought-like conditions hampered prairie dog recovery through 2000. Increased moisture in 2001 appears to have resulted in increased prairie dog densities. Other factors that may negatively impact the prairie dog population include (1) drought the previous summer and poor pup production; (2) drowning of significant numbers of prairie dogs during unusually heavy rains and runoff; (3) substantial recreational shooting by organized groups of shooters during March and April, when females are pregnant, or May and June, when pups are totally dependent on their mothers for sustenance and are very vulnerable to shooting; and (4) population-shifting immigration or emigration across established prairie dog town boundaries (WGFD 2002).

The 2003 survey effort was the smallest survey effort conducted in Shirley Basin since its inception in 1991. Twelve surveyors covered approximately 5 percent of the entire prairie dog complex in Shirley Basin in 6 nights. There were black-footed ferrets in nearly every prairie dog town surveyed. There were 52 black-footed ferrets, including 10 litters, found within those 6 survey nights. Wild-born kits were

again documented in Shirley Basin, and ferrets were located well over 9 miles from where the original reintroduction took place. Since 1994, after the last black-footed ferret was released in Shirley Basin, new opportunities exist for ferrets in this area and in Wyoming. The Service and Black-footed Ferret Recovery and Implementation Team are currently revising recovery goals for the black-footed ferret and updating the recovery plan (Grenier 2004).

Management Status Recovery and Conservation Planning

A Cooperative Management Plan was developed that outlined how ferret reintroductions would occur so as to be compatible with existing and potential land uses. The RMPPA was designated into two management zones: Primary Management Zone 1 (PMZ1) and Primary Management Zone 2 (PMZ2), because of the extensive size of the overall area (USFWS 1991a).

The ESA provides for the designation of specific populations of listed species as "experimental populations." This designation increases the Service's flexibility to manage reintroduced populations of endangered species because experimental populations may be treated as threatened species. There is more discretion for devising management programs when species are listed as threatened. Additional flexibility occurs if the experimental population is found to be "nonessential." The population of black-footed ferrets in the Shirley Basin area is classified as a nonessential experimental population. These black-footed ferrets are treated as if they are a proposed species (USFWS 1991b).

Spotlighting has been an effective technique for locating black-footed ferret presence, however there is reason to doubt its effectiveness as a survey method in the conditions that currently exist in the Shirley Basin area. During the 1994, 1995, and 2000 spotlight surveys, there were occasions in which ferrets were observed only briefly, or green eye shine could not be identified to species. In 2000, similar to the 1995 and 1996 summer surveys, an effort was made to positively identify the animal by placing an observer at the site for 1 night following observation. However, as in previous years, the observer failed to positively identify the individual. Some ferrets may be exhibiting avoidance behavior with respect to spotlights and possibly human or vehicle presence, therefore a population estimate based on spotlighting data should be considered a minimum number (WGFD 2002).

Habitat and Species Conservation Measures

1. Recommended management actions for the Shirley Basin nonessential experimental black-footed ferret population will comply with the U.S. Department of the Interior (DOI) Federal Register, Vol. 56, No. 162, August 21, 1991, Rules and Regulations. This notice describes "Endangered and Threatened Wildlife and Plants: Establishment of a Nonessential Experimental Population of Black-footed Ferrets in Southeastern Wyoming."

Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*)

Listing Status: Federal—Threatened, May 13, 1998

Species Description

The Preble's meadow jumping mouse (Preble's) is a small rodent with hind legs much longer than its forelegs. The tail is longer than the body and it is sparsely haired. Tail coloring is darker on top than the underside. The Preble's eyes are midway between the nose and the ear, and the ears are dark and edged with white. There are 18 teeth, with upper incisors having distinct grooves on their outer faces. Cheek pouches are absent. Fur on the back is yellow olive-brown, with scattered, long, black-tipped hairs that

create a faint dorsal stripe. The sides are light yellow-brown, and the belly is white to light buff. Young tend to have softer, lighter fur than adults.

The adult measurements are as follows: total length 180–220 mm (7.09–8.66 inches); head and body length less than 89 mm (3.50 inches); tail 115–136 mm (4.53–5.35 inches); hind foot 28–31 mm (1.10–1.22 inches); ear 11–16 mm (0.43–0.63 inches); weight 12–22 g (0.42–0.77 ounces) (Clark and Stromberg 1987, Compton and Hugie 1993); in addition incisive foramina shorter than 4.6 mm (0.18 inches); palatal breadth at last molariform tooth less than 4.2 mm (0.17 inches); condylobasal length usually less than 20.3 mm (0.80 inches); and maxillary toothrow usually 3.7 mm (0.15 inches) or less (Whitaker and Wrigley 1972).

Life History

Typical habitat for the Preble's comprises well-developed plains riparian vegetation with adjacent undisturbed grassland communities and a nearby water source (USFWS 2002). Preble's are assumed to occur in brushy riparian ecosystems along foothills and prairies east of the Front Range of the Rocky Mountains. Elevations of jumping mice occurrences within the suspected range of Preble's seem to be less than 7,800 feet (2,377 m) (Pague and Grunau 2000), but they have been documented at over 8,000 feet (2438 m) in the Laramie Mountains of Wyoming (Beauvais 2001). There is likely distributional overlap, with potentially extensive hybrid zones, particularly between Preble's and the meadow jumping mouse (*Z. princeps*). Attempts to genetically differentiate Preble's from *Z. princeps* have been largely unsuccessful, and extensive morphological comparisons are now underway to help clarify the issue (Beauvais 2001).

Shenk and Eussen (1998) determined that suitable Preble's habitat appears to have at least two major components. The first component is a supply of open water, at least in part of the active season. Second, dense cover is needed. The mice movement patterns include the use of riparian habitats, upland habitats, and hibernation habitats.

Food Habits

Studies of jumping mouse food habits in central and eastern United States indicate that they are governed by availability more than preference (Whitaker 1963). Grass seeds of several species are probably the most important component of the diet, and mice will shift to those species that have available seed. Preble's will clip tall vegetation to get to the more nutritious terminal buds. Invertebrates and fungi are also readily eaten. Mice feed on both adult and larval invertebrates, especially *Coleoptera* (beetles). Invertebrate feeding is very important in the spring as mice emerge from hibernation, and it may consist of half the diet at that time. Mice also feed on various species of fungi, which are often encountered during burrowing activity. As the growing season progresses, graminoid seeds dominate the diet.

Most of the information on the Preble's derives from research completed in Colorado. Research in Douglas County, CO, indicates that Preble's are consuming more fungi and arthropods than researchers expected (Grunau et al. 1999). The study also indicates that shifts in diet content match movement shifts, but a cause-effect relationship is unclear. Researchers in the Douglas County project have also observed that Preble's from different stretches of streams regularly congregate at the same feeding "hotspots."

Although fecal analyses have provided the best data on the Preble's diet to date, they overestimate the components of the diet that are less digestible. Based on fecal analyses, the Preble's eats insects; fungus; moss; pollen; willow (*Salix spp*.); lamb's quarters (*Chenopodium spp*.); Russian thistle (*Salsola spp*.); sunflowers (*Helianthus spp*.); sedges *(Carex spp*.); mullein (*Verbascum spp*.); grasses such as cheatgrass (*Bromus spp*.), fescue (*Festuca spp*.), bluegrasses (*Poa spp*.), alkali sacaton (*Sporobolus spp*.), and

wheatgrasses (*Agropyron spp*.); bladderpod (*Lesquerella spp*.); horsetail (Eq*uisetum spp*.); and assorted seeds (Shenk and Eussen 1998, Shenk and Sivert 1999a). The diet shifts seasonally: it consists primarily of insects and fungus after emerging from hibernation; shifts to fungus, moss, and pollen during midsummer (July–August), and adds insects again in September (Shenk and Sivert 1999a). The shift in diet along with shifts in mouse movements suggest that the Preble's may require specific seasonal diets, perhaps related to the physiological constraints imposed by hibernation (Shenk and Sivert 1999a).

Preble's are not known to store food, therefore they must consume food prior to hibernation. Because sufficient energy to survive overwinter must be provided by fat stores accumulated prior to hibernation, the availability of adequate food resources during this time of year is a critical factor for these mice. It seems reasonable to assume that graminoid seeds are especially important during this period because of the proportionally high fat content of this food source (Grunau et al. 1999).

Riparian Habitats

All forms of *Zapus* in Wyoming are strongly associated with riparian areas and are seldom found outside of heavy vegetation immediately adjacent to flowing streams. The Preble's meadow jumping mouse is strongly associated with foothills and plains riparian areas. The mice are often found in dense, herbaceous riparian vegetation. Known locations sometimes have an overstory canopy layer but usually have a well-developed shrub layer and a thick herbaceous layer. Most often the shrub cover consists of willow species, but the species composition seems to be secondary to the overall presence of a mature shrub component. A distinguishing characteristic for Preble's habitat is the presence of a dense, herbaceous ground cover. Most often Preble's are found in close association with these dense riparian habitats, with decreasing numbers occurring farther from this type of habitat (Corn et al. 1995, Meaney et al. 1996). Based on a study of kidney structure, it is believed that Preble's are dependent on open water (Wunder 1998), which may explain their close association to these habitats.

Preble's appear to prefer riparian habitats that are structurally diverse (Shenk and Eussen 1998). The herbaceous understory is primarily grasses or forbs or mixtures of the two. Research indicates Preble's prefer areas dominated by more than two understory species. The tall shrub canopy at most sites is willow, although scrub oak (*Quercus gambelii*), birch (*Betula spp*.), and alder (*Alnus spp*.) were also used by Preble's (Armstrong et al. 1997). Preble's appear to tolerate weedy or exotic species in areas that are structurally diverse and species-rich, although Canada thistle (*Cirsium arvense*) is often found in Preble's habitat. Preble's don't appear to have an affinity to any single plant species but instead favor sites that are structurally diverse and provide adequate cover and food throughout its life cycle.

Preliminary estimates of habitat use indicate Preble's spend 70 percent of the time in riparian shrub communities and 30 percent in upland grasslands, but specific activities in each habitat type are unknown (Grunau et al. 1999). The amount of riparian shrubs seems to be the best indicator of the quality of the Preble's habitat (White and Shenk 2000).

Upland Habitats

Preble's have rarely been trapped in uplands adjacent to riparian areas (Dharman 2001). However in detailed studies of Preble's movement patterns using radio telemetry, Preble's has been found feeding and resting in adjacent uplands (Shenk and Sivert 1999b, Ryon 1999, Schorr 2001). These studies reveal that Preble's regularly uses uplands at least as far out as 100 m (about 330 ft) beyond the 100-year flood plain (Ryon 1999). Preble's also move considerable distances along streams, as far as 1.6 km (1.0 mi) in one evening (Ryon 1999, Shenk and Sivert 1999a).

Upland use has occurred during the day as well as at night. Studies have suggested that upland grasslands may serve as feeding hotspots (Grunau et al., 1999), but in research at the U.S. Air Force Academy (USAFA) in Colorado Springs, CO, this has not been specifically observed at the Academy. Research on the Air Force base indicates that Preble's are regularly and consistently using upland grasslands adjacent to riparian habitat. These results indicate that this habitat type must be important for some life history component.

Ongoing research indicates that use of upland habitats is higher than originally presumed, and this buffer area may not be sufficient (Shenk and Silvert 1999a). The research suggests use of the buffer zone and even habitat farther away was higher than anticipated, and further research was needed to determine the extent of upland habitat use.

The upland areas used by Preble's can be characterized as a mosaic of grasslands, oak scrub, and ponderosa pine woodlands (Grunau et al. 1999). Periodic fire and grazing by native ungulates were major ecological processes that influenced the vegetation. The patchy nature of fire and grazing resulted in a shifting mosaic of vegetation types on the ground over time.

Historic fire return intervals for the Front Range ponderosa pine forests (which include the Laramie Range) range between 8 and 45 years (Laven et al. 1980, Mehl 1992). Shortgrass to mixed-grass prairie on level topography burned approximately every 5 to 10 years, and approximately 20 to 30 years on dissected topography (Wright and Bailey 1980).

Hibernation Habitat

The Preble's is a true hibernator. Meadow jumping mice spend at least 7 months per year in hibernation, in underground burrows that they create themselves. One confirmed hibernaculum, documented in Colorado, was a leaf litter nest approximately 30 cm (11.8 inches) below ground, 9 meters (29.5 ft) above a creek bed under thick shrub cover of chokecherry (*Prunus virginiana*), poison ivy (*Toxicodendron rydbergii*) and snowberry (*Symphoricarpos spp.*) (Grunau et al. 1999).

Extensive research at the USAFA in Colorado Springs resulted in the documentation of seven possible hibernacula. Distances from a creek ranged from 7 meters (23 ft) to 31 meters (102 ft); there was no consistency in aspect among these sites. Four sites were within the riparian willow shrub zone, and three were outside, but all seven sites were under some shrubby vegetation (snowberry, willow, or oak) (Grunau et al. 1999). Only two sites were outside the 100-year flood plain. Based on this limited data from presumed hibernacula, it appears Preble's do not move an appreciable linear distance along the waterway to hibernate. Preble's will move away from the waterway to hibernate, but they rarely relocate to another section of stream that was not previously used during their activity period.

Investigation of habitat associations and movement patterns at the USAFA in Colorado Springs has found 15 apparent Preble's hibernacula (hibernation nests), located through radio telemetry, all within 78 m (about 260 ft) of a perennial streambed or intermittent tributary (Bakeman and Deans 1997, Shenk and Sivert 1999a, Schorr 2001). Of these, one was confirmed through excavation (Bakeman and Deans 1997); others were left intact to prevent harm to the mice. Hibernacula have been located under willow, chokecherry, snowberry, skunkbrush sumac (*Rhus spp.*), clematis (*Clematis spp.*), cottonwoods (*Populus spp.*), Gambel's oak, thistle (*Cirsium spp.*), and alyssum (*Alyssum spp.*) (Shenk and Sivert 1999a). Four of six hibernacula found by Schorr (2001) using radio telemetry were located in close proximity to coyote willow (*Salix exigua*). Bakeman and Deans (1997) found one excavated hibernaculum 9 m (30 ft) above the streambed, in a dense patch of chokecherry and snowberry. The nest was constructed of leaf litter 30 centimeters (cm) (12 in) below the surface in coarse-textured soil.

Males emerge from hibernation prior to females (late April to early May and early-to-late May, respectively). In Colorado, adult Preble's have been captured as early as May 5 for males and May 21 for females, and as late as October 10. Juveniles have been captured as late as October 26 (male) and 27 (female). At the USAFA, the earliest capture was May 19, the first day of trapping for that particular study, although individuals may have been active earlier. Based on telemetry data, the latest activity observed at the base was in mid-October. Based on these dates, the active period for Preble's is roughly May 1 through October 31 (Armstrong et al. 1997).

Day Nests

The Preble's constructs day nests composed of grasses, forbs, sedges, rushes, and other available plant material. They may be globular in shape or simply raised mats of litter, and they are most commonly aboveground but also can be belowground. They are typically found under debris at the base of shrubs and trees, or in open grasslands (Ryon 2001). An individual mouse can have multiple day nests in both riparian and grassland communities (Shenk and Sivert 1999a) and may abandon a nest after approximately a week of use (Ryon 2001).

Population Distribution

The full species is widespread and secure in North America. However the Preble's subspecies is restricted to a narrow strip along the Front Range of the Rocky Mountains, from central Colorado to east-central Wyoming. Knowledge about the current distribution of Preble's comes from collected specimens and live-trapping locations from both rangewide survey efforts and numerous site-specific surveys efforts conducted in Wyoming and Colorado since the mid-1990s (USFWS 2002). The species is known to occur in only four counties in Colorado and two counties in Wyoming. Historical surveys document its former presence in five additional counties in Colorado and three additional counties in Wyoming (USFWS 1997).

RMPPA Distribution

The semiarid climate in southeastern Wyoming and eastern Colorado limits the extent of the riparian corridors and restricts the range of the Preble's in this region (USFWS 2002). In Wyoming the Preble's were not found at five sites within their historical range during the 1993 surveys completed by the Service (USFWS 1997). The Preble's meadow jumping mouse recently has been documented in two counties: Laramie County (along Crow Creek at F.E. Warren Air Force Base) and Albany County (in the Lodgepole Creek drainage within the Medicine Bow National Forest). The Wyoming Cooperative Research Unit successfully captured two Preble's on F.E. Warren Air Force Base in the 1995 field season (Garber 1995).

Garber (1995) conducted Preble's surveys at four Wyoming sites during the 1995 field season. He was unable to locate any Preble's on F.E. Warren Air Force Base but did find Preble's at two locations in the Lodgepole Creek drainage within the Medicine Bow National Forest in Albany County. The Colorado Natural Heritage Program surveyed for Preble's at Warren Air Force Base in 1996 and captured eight apparent Preble's in 2,200 trap-nights of effort (Schuerman and Pague 1997). The Federal Register of July 17, 2002 (pp. 47153–47210), states that in Wyoming, capture locations of mice confirmed as the Preble's, and locations of mice identified in the field as Preble's, extend in a band from the town of Douglas (just outside the RMPPA) southward along the Laramie Range to the Colorado border, with some captures in Laramie County as well as in other counties outside of the RMPPA.

Reproduction and Survivorship

The Preble's meadow jumping mouse may produce up to three litters per season (Whitaker 1963), with an average of 5 to 6 young per litter (Quimby 1951). Population peaks occur in early- to mid-June, August, and possibly September (Whitaker 1963). Age at first reproduction is poorly known, but *Z. hudsonius* females have been known to give birth at 3 months of age (Quimby 1951).

Not much is known about Preble's longevity, but some recaptured individuals have survived at least 3 years. Estimates of survival rates based on mark-recapture studies of 69 individuals at the USAFA in Colorado Springs indicate that approximately 52 percent of the individuals from July survive until September (Grunau et al. 1999). In a Douglas County, CO, study from 1998, oversummer survival (June 1 to October 5) was estimated at approximately 36 percent. Studies in Boulder County, CO, indicate approximately 60 percent oversummer survival (June to August) (Meaney et al. 1999).

Overwinter survival rates are not well known. Meaney et al. (1999) calculated a winter survival rate of approximately 22 percent in Boulder County, CO. Overwinter loss of 67 percent was observed in a *Z. hudsonius* population in New York, presumably from insufficient fat stores (Whitaker 1963). Other observed sources of mortality of *Z. hudsonius* include cannibalism (Sheldon 1934); accidental drowning; roadkill; and predation by house cats, garter snakes, rattlesnakes, and fox (Grunau et al. 1999). Additional presumed causes of mortality include starvation, exposure, and disease (Whitaker 1972).

Management Status Recovery and Conservation Planning

The Preble's is closely associated with riparian ecosystems that are relatively narrow and represent a small percentage of the landscape. If habitat of the Preble's is destroyed or modified, populations in those areas will decline or be extirpated. The decline in the extent and quality of Preble's habitat is considered the major factor threatening the subspecies. Habitat alteration, degradation, loss, and fragmentation resulting from urban development, flood control, water development, agriculture, and other human land uses adversely impacts Preble's populations. Habitat destruction may impact individual Preble's directly or by destroying nest sites, food resources, and hibernation sites; by disrupting behavior; or by forming a barrier to movement (USFWS 2002). Although urban development and agriculture, as well as most flood control actions, are not authorized on Bureau-administered lands, these actions become cumulative to other actions that are authorized on Bureau-administered lands and add to both indirect and direct impacts that may occur to both the Preble's and associated habitats.

The conservation measures applicable to Bureau-authorized actions for the Preble's meadow jumping mouse include both habitat conservation measures and species conservation measures. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Preble's meadow jumping mouse. These measures are listed below.

Habitat Conservation Measures

1. Surface disturbing and other disruptive activities will be intensively managed to maintain or enhance identified potential habitat (within100 meters [330 feet] of the identified 100-year flood plain) or known habitat for the Preble's meadow jumping mouse. Intensive management may vary from year to year and includes the use of inventory, proper distance restrictions, and seasonal or timing restrictions.

2. In habitat suitable for the Preble's meadow jumping mouse, prescribed fire will be designed to burn no more than 25 percent of the Preble's habitat within each linear mile stretch of habitat. The percentage of habitat actually burned in each linear mile will be reported to the Service. Because of the unpredictability of fire, this measure will be achieved if no more than 1 of every 4 fires exceeds the 25 percent limit in

size. If more than 2 of the first 8 fires in Preble's habitat exceed 25 percent of the suitable habitat, the Bureau will consult with the Service to revise this standard.

3. Following burns in suitable habitat within the range of Preble's, onsite surveys will be conducted to determine if vegetation has recovered.

Species Conservation Measures

1. Surface disturbing and other disruptive activities located within identified or known breeding habitat (within 100 meters [330 feet] of the identified 100-year flood plain) for the Preble's meadow jumping mouse will not be allowed between May 15 and August 15 for the protection of the mouse.

2. Surface disturbing and other disruptive activities located within an identified hibernaculum area for the Preble's meadow jumping mouse will be intensively managed between August 16 and May 14 for the protection of the mouse. Intensive management may vary from year to year and includes the use of inventory and proper distance restrictions.

Best Management Practices

1. The Bureau should coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact Preble's and its habitat.

2. Where needed, fence areas of high recreational use. In addition, to minimize human presence and its associated impacts, recreation areas should be located outside Preble's habitat.

3. Care should be taken to avoid the construction of firelines through habitat. However, low- to moderate-intensive prescribed fire may be useful in the maintenance of Preble's habitat and prevention of catastrophic fires.

4: Minimize new trail, road, or ROW development within 100meters [330 feet] of the 100-year flood plain within the range of Preble's meadow jumping mouse. Where roads must cross riparian zones, crossings should be made at right angles of the stream. To reduce habitat fragmentation, existing roads in designated Critical habitat would be reviewed for possible closure or relocation.

Preble's Meadow Jumping Mouse Critical Habitat

Listing Status: Critical Habitat, identified February 2003

Critical Habitat Description

Critical habitat identified specific areas, both occupied and unoccupied, that are essential to the conservation of a listed species and that may require special management considerations or protection. Critical habitat for the Preble's meadow jumping mouse (Preble's) receives protection under section 7 of the ESA through the prohibition against destruction or adverse modification of Critical habitat with regard to actions carried out, funded, or authorized by a federal agency. Section 7 also requires consultation with the Service on federal actions that are likely to result in the destruction or adverse modification of proposed Critical habitat. Critical habitat identified by the Service must be essential to the conservation of the species and are areas that provide essential life cycle needs of the species. Not all areas that can be occupied by a species will be designated Critical habitat. The Service designates areas as Critical habitat only if they are essential for the species.

Habitat is dynamic, and a species may move from one area to another over time. Designation of Critical habitat may not include all habitat eventually determined as necessary to recover the species. Critical habitat designations do not signal that habitat outside the Critical habitat designation is unimportant or may not be required for recovery. Areas outside the Critical habitat designations will continue to be subject to conservation actions that may be implemented under sections 7 and 9 of the ESA (USFWS 2002).

Life History

The life history of the Preble's is described above. This section discusses Critical habitat, as identified and authorized by the Service, for the mouse. Critical Habitat is defined in Section 3(5)(A) of the ESA as (1) the specific areas within the geographic area occupied by a species at the time it is listed in accordance with the Act, on which are found those physical or biological features essential to conserve the species and that may require special management considerations for protection; and (2) specific areas outside the geographic area occupied by a species at the time it is listed, upon determination that such areas are essential to conserve the species. The Service defines conservation as the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which listing under the ESA is no longer necessary (USFWS 2002).

Population Distribution

Critical habitat units include only river and stream reaches and adjacent floodplains and uplands that are within the known geographic and elevational range of the Preble's; have the primary constituent elements present; and, based on the best available scientific information, are believed to currently support the Preble's. In Wyoming, and at higher elevations along the Front Range in Colorado, the geographic distribution of the Preble's has been subject to scrutiny because of the close resemblance and apparent range overlap between the Preble's and the Western jumping mouse. At this time new information has not appreciably changed the known range of the Preble's. Presence of Preble's was determined based largely on the results of trapping surveys, with the majority of these conducted over the past 6 years.

The Service considered several qualitative criteria to judge the current status and probable persistence of Preble's in the area, and proposal of specific areas as Critical habitat. The criteria included (1) the quality, continuity, and extent of habitat components present; (2) the state of hydrological processes that maintain and rejuvenate suitable habitat components; (3) the presence of land devoted to conservation (public lands, parks, open space, and/or private lands under conservation agreements); and (4) the landscape context of the site, including human disturbance and future development. The Service reviewed drainages within the North Platte River drainage, South Platte River drainage, and Arkansas River drainage. The RMPPA-proposed projects may be located in habitat that may affect both the North Platte River and South Platte River drainages (USFWS 2002).

RMPPA Distribution

At this time there is no identified Critical habitat for the Preble's meadow jumping mouse located on Bureau-administered lands within the RMPPA.

The recovery criteria call for one large and two medium recovery populations within the North Platte River basin and three small or one medium recovery population within the South Platte River basin likely to support Preble's. These populations could be located inside or outside of the RMPPA.

The North Platte River drainage riparian areas that are located within the RMPPA include portions of Cottonwood Creek and Chugwater Creek recovery population areas. The Service identified Cottonwood

Creek and its tributaries, including Kloer Creek, North Cottonwood Creek, and Preacher Creek, as Critical habitat for the Preble's. These creeks are located near the junction of Converse, Albany, and Platte counties. The Service identified the Chugwater Creek drainage as Critical habitat consistent with one large recovery population. Chugwater Creek, unnamed tributaries, as well as Strong Creek, Shanton Creek, and Ricker Creek tributaries, are identified as Critical habitat for the Preble's.

The South Platte River drainage riparian areas that are located within the RMPPA include portions of the Lodgepole Creek drainage recovery population areas. This area contains Critical habitat and is consistent with two of the three small recovery populations for the South Platte River drainage. The south branch of Middle Lodgepole Creek, the north branch of Middle Lodgepole Creek, Middle Lodgepole Creek, North Lodgepole Creek, and Lodgepole Creek are identified as Critical habitat.

Reproduction and Survivorship

Information on the reproduction and survivorship of the Preble's meadow jumping mouse is identified above in the Preble's meadow jumping mouse section of this BA.

Management Status Recovery and Conservation Planning

The regulations identified in the Federal Register, Volume 68, Number 120, Monday, June 23, 2003, Rules and Regulations, will be followed concerning management status recovery and conservation planning for activities that are located or have the potential to be located within Critical habitat for the Preble's meadow jumping mouse. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of Preble's meadow jumping mouse Critical habitat.

Habitat Conservation Measures

1. Surface disturbing and other disruptive activities located on land adjacent to Critical habitat will be intensively managed to maintain or enhance designated Critical habitat for the Preble's meadow jumping mouse. Intensive management may vary from year to year and includes the use of inventory, proper distance restrictions, and seasonal or timing restrictions.

Species Conservation Measures

1. Surface disturbing and other disruptive activities located on land adjacent to Critical habitat within identified or known breeding habitat (within 100 meters [330 feet] of the identified 100-year flood plain) will not be allowed between May 15 and August 15 for the protection of the mouse.

2. Surface disturbing and other disruptive activities that are located on land adjacent to Critical habitat within an identified hibernaculum area in Critical habitat for the Preble's meadow jumping mouse will be intensively managed between August 16 and May 14 for the protection of the mouse. Intensive management may vary from year to year and includes the use of inventory and proper distance restrictions.

Best Management Practices

1. In Critical habitat, conduct a survey before beginning any potential disturbing activities.

2. The Bureau should coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact Preble's and its Critical habitat.

3. Where needed, fence areas of high recreational use. In addition, to minimize human presence and its associated impacts, recreation areas should be located outside Critical habitat for the Preble's.

4. Care should be taken to avoid the construction of firelines through Critical habitat. However, low- to moderate-intensive prescribed fire may be useful in the maintenance of Critical habitat for the Preble's and for prevention of catastrophic fires.

5. Minimize new trail, road, or ROW development within 100 meters [330 feet] of the 100-year flood plain within the Critical habitat for the Preble's meadow jumping mouse. Where roads must cross riparian zones, crossings should be made at right angles of the stream. To reduce habitat fragmentation, existing roads in designated Critical habitat will be reviewed for possible closure or relocation.

6. Maintain and restore the dynamics of stream systems, both within and upstream of Critical habitat, to benefit Critical habitat for the Preble's jumping mouse, including the movement of streams within their floodplains. This habitat should be considered when designing bank stabilization and channelization, straightening riparian channels, and for riprap projects.

Canada lynx (*Lynx canadensis*)

Listing Status: Federal—Threatened

The Canada lynx (hereafter referred to as "lynx") was listed as a federally threatened species on April 24, 2000, pursuant to the ESA. Critical habitat has not been designated. A civil suit has been filed in Federal District Court against the Service for not designating Critical habitat for lynx. Depending on the court ruling in this matter, the issue of Critical habitat may be readdressed at a later date.

A BA of the "Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada Lynx" (Canada Lynx BA) (Hickenbottom et al. 1999) was prepared and submitted to the Service in December 1999. An Interagency Lynx Biology Team was selected to prepare the Canada Lynx Conservation Assessment Strategy (LCAS), which was completed in January 2000. The Service then issued a BO in October 2000.

Species Description

The lynx is a medium-sized cat with long legs; large, well-furred paws; long tufts on the ears, and a short, black-tipped tail (McCord and Cardoza 1982). Adult males weigh an average of 22 pounds (10 kg) and are generally 33.5 inches (85 cm) in length (head to tail); females average 19 pounds (8.6 kg) and are generally 32 inches (81 cm) in length (Quinn and Parker 1987). The long legs and large feet of the lynx make this cat highly adapted for hunting in deep snow.

The bobcat (*Lynx rufus*) is a North American relative of the lynx. Compared to the lynx, the bobcat has smaller paws, shorter ear tufts, and a more spotted pelage (coat), and only the top of the tip of the tail is black. The paws of the lynx have twice the surface area as those of the bobcat (Quinn and Parker 1987). The lynx also differs in its body proportions in comparison to the bobcat. Lynx have longer legs, with hind legs that are longer than the front legs, giving the lynx a "stooped" appearance (Quinn and Parker 1987). Bobcats are largely restricted to habitats where deep snows do not accumulate (Koehler and Hornocker 1991).

Life History

In the contiguous United States, the distribution of the lynx is associated with the southern boreal forest, comprised of subalpine coniferous forest in the West (Aubry et al. 2000). At its southern margins, the boreal forest becomes naturally fragmented into patches of varying size as it transitions into other vegetation types. These southern boreal forest habitat patches are small relative to the extensive northern boreal forest, which constitutes the majority of the lynx range. Many of these southern boreal forest patches are able to support resident populations of lynx and their primary prey species, the snowshoe hare (*Lepus americanus*). It is likely that some of the habitat patches act as "sources," where lynx recruitment is greater than mortality and lynx are able to disperse and potentially colonize other patches (McKelvey et al. 2000). Other habitat patches act as "sinks," where lynx mortality is greater than recruitment and lynx are lost from the overall population. The ability of naturally dynamic habitat to support lynx populations may change as the habitat undergoes natural succession following natural or artificial disturbances (i.e., wildland fire or timber harvesting).

Lynx use large woody debris, such as downed logs and windfalls, to provide denning sites with security and thermal cover for kittens (McCord and Cardoza 1982; Koehler 1990; Koehler and Brittell 1990; Squires and Laurion 2000). For lynx den sites, the age of the forest stand does not seem as important as the amount of downed woody debris available (Mowat et al. 2000). A den site in Wyoming was located in a mature subalpine fir/lodgepole pine forest with abundant downed logs and a high amount of horizontal cover (Squires and Laurion 2000).

The size of lynx home ranges varies by the animal's gender, abundance of prey, season, and the density of lynx populations (Koehler 1990; Poole 1994; Slough and Mowat 1996; Aubry et al. 2000; Mowat et al. 2000). Preliminary research supports the hypothesis that lynx home ranges at the southern extent of the species' range are generally large compared to those in the northern portion of the range (Koehler and Aubry 1994; Squires and Laurion 2000).

Lynx are highly specialized predators that have evolved to survive in areas that receive deep snow (Bittner and Rongstad 1982). Snowshoe hares use forests with dense understories that provide forage, cover to escape from predators, and protection during extreme weather (Wolfe et al. 1982; Monthey 1986; Hodges 2000). Generally, earlier successional forest stages have greater understory structure than do mature forests and therefore support higher hare densities (Hodges 2000). However mature forests also can provide snowshoe hare habitat as openings develop in the canopy when trees succumb to disease, fire, and wind, and the understory grows (Buskirk et al. 2000). Lynx concentrate their hunting activities in areas where hare activity is relatively high (Koehler et al. 1979, Parker 1981, Ward and Krebs 1985, Major 1989, Murray et al. 1994).

The association between lynx and snowshoe hare is considered a classic predator-prey relationship (Saunders 1963, van Zyll de Jong 1966, Quinn and Parker 1987). Generally, researchers believe that when hare populations are at their cyclic high, depletion of food resources exacerbated by predation cause hare populations to decline drastically (Buehler and Keith 1982, Krebs et al. 1995, O'Donoghue et al. 1997). Snowshoe hare provide the quality prey necessary to support high-density lynx populations (Brand and Keith 1979). Lynx also prey opportunistically on other small mammals and birds, particularly when hare populations decline (Nellis et al. 1972, Brand et al. 1976, McCord and Cardoza 1982). Red squirrels (*Tamiasciurus hudsonicus*) are an important alternate prey (O'Donoghue 1997, Aubry et al. 1999, Apps 2000). However a shift to alternate food sources may not compensate for the decrease in hares consumed (Koehler and Aubry 1994). Koehler (1990) suggested that a diet of red squirrels alone might not be adequate to ensure lynx reproduction and survival of kittens.

Relative snowshoe hare densities at southern latitudes are generally lower than those in the north, which has led to differing interpretations of population dynamics of snowshoe hare populations. Snowshoe hares are generally associated with conifer forest cover types (Hodges 2000). In the southern boreal forest, relatively low snowshoe hare densities are likely a result of the naturally patchy, transitional boreal habitat that prevents hare populations from achieving densities similar to those of the expansive northern boreal forest (Wolff 1980, Buehler and Keith 1982). In addition, the presence of more predators and competitors of hares at southern latitudes may inhibit the potential for high-density populations with extreme cyclic fluctuations (Wolff 1980).

Population Distribution

The complexities of lynx life history and population dynamics, combined with a general lack of reliable historic and current lynx data for the contiguous United States, make it difficult to ascertain the past or present population status of lynx. Because of the naturally fragmented habitat and lower-density hare populations in the contiguous United States, lynx are expected to occur at naturally lower densities than in the north.

Historic lynx data in the contiguous United States are scarce and exist primarily in the form of trapping records. Many states did not differentiate between bobcats and lynx in trapping records. Therefore long-term lynx trapping data are not available for most states. Surveys designed specifically for lynx were rarely conducted, and many reports (e.g., visual observations, snow tracks) of lynx were collected incidental to other activities. The reliability of many of these records is unknown: trapping records may have errors, track identification is extremely difficult, and observations may be wrong.

Within the contiguous United States, the lynx range extends into different regions that are separated from each other by ecological barriers consisting of unsuitable lynx habitat. Wyoming lies within the Northern Rocky Mountains/Cascades region. Most historical and recent records of lynx in Wyoming are from the northwestern mountain ranges (Reeve et al. 1986, McKelvey et al. 2000). McKelvey et al. (2000) found only 30 verified records statewide since 1856. Until 1957, lynx had bounties place on them. After 1973, the lynx was listed as a protected nongame species, and harvest was closed.

In 1996 WGFD began a lynx study in west-central Wyoming. Kittens were documented in 1998 (Squires and Laurion 2000). This may indicate the presence of a resident population in this local area (Ruggiero et al. 2000). However, using available information, the status or trend of lynx throughout Wyoming was not possible. A radio-collared female, who produced the previously noted kittens, died of starvation in the winter of 2000. A radio-collared male lynx (who died of starvation in the winter of 2002) was documented to travel the area from the northern Bridger Teton National Forest to the lower extent of the Wyoming Range (Laurion and Oakleaf 1998). Other lynx have been documented in Wyoming, including in Yellowstone National Park (YNP) (Reeve et al. 1986).

RMPPA Distribution

The presence of lynx is unlikely in the RMPPA due to the lack of suitable habitat (spruce/fir/late-seral conifer forest on slopes of 8–12 degrees, and no denning sites on or adjacent to Bureau lands), poor abundance of its principle prey the snowshoe hare and secondary prey the red squirrel, and possibly the level of human disturbance (National Park Service [NPS] 2000, Ruediger et al. 2000, Beauvais et al. 2001). Within the identified forest type, lynx are most likely to persist in areas that receive deep snow (Ruggiero et al. 2000). This snow condition is lacking in the RMPPA, where the total annual snowfall is about 4 feet (1.22 m) and the mean monthly snowfall ranges from 10 to 20 inches (0.25 to .51 m) (Western Regional Climate Center). RMPPA lands are not in a designated Lynx Analysis Unit (LAU), and no permanent populations of lynx are known to exist within the RMPPA.

Lynx may use riparian areas throughout the RMPPA as travel corridors between suitable habitats found in adjoining forests. Two radio-collared lynx from a research study population in Colorado have been documented in the southern portion of the RMPPA, in the Sierra Madre mountain range.

Reproduction and Survivorship

The availability of prey can influence the time of first breeding: if forage is plentiful, then breeding may begin at 1 year of age. Otherwise, 2 years of age is more common (Ruediger et al. 2000, WI-DNR undated). Breeding occurs from January or February in the southern region, to March or April in the north. Gestation is 60–65 days, and litters generally range from 1–4 kittens, whose eyes remain closed for 8–10 days postpartum. The male does not tend to the kittens (Eisenburg 1986, Ruediger et al. 2000, WI-DNR undated). Fecundity and kitten survival also appear to have a relationship to prey status (Ruediger et al. 2000).

In northern study areas during the low phase of the hare cycle, few if any kittens are born, and few yearling females conceive. In the far north, some lynx recruitment occurs when hares are scarce, and this may be important in lynx population maintenance during low hare cycles. During periods of hare abundance in the northern taiga, litter size of adult females averages 4 to 5 kittens (Ruediger et al. 2000).

Reported causes of lynx mortality vary between studies. The most commonly reported causes include starvation of kittens and human-caused mortality (fur trapping). Various studies in the northern taiga have shown that during periods of low snowshoe hare numbers, starvation can account for up to two-thirds of all natural lynx deaths. Trapping mortality may be additive rather than compensatory during the low period of the snowshoe hare cycle. Hunger-related stress, which induces dispersal, may increase the exposure of lynx to other forms of mortality, such as trapping and highway collisions. Predation on lynx by mountain lion, coyote, wolverine, gray wolf, and other lynx has been documented and confirmed (Ruediger et al. 2000).

Management Status Recovery and Conservation Planning

In August 2000 the Bureau and the Service signed a Canada Lynx Conservation Agreement. The intent of this Agreement is to (1) coordinate assessment and planning efforts between the two agency signatories and with other appropriate entities (e.g., USFS, NPS, state and tribal agencies) to assure a comprehensive approach to conserving lynx; (2) use the Science Report and LCAS (Ruediger et al. 2000), together with locally specific information, as appropriate, as the basis for these actions; (3) use the Science Report and LCAS, together with locally specific information as appropriate, as the basis for streamlining ESA Section 7 consultation between the Bureau and the Service; and (4) utilize the best available scientific and commercial data during the Section 7 consultation process. The Conservation Agreement specifies that "the LCAS will be used and referenced in all determinations of effect for lynx." (Federal Register 50 CFR Part 17, Endangered and Threatened Wildlife and Plants, Determination of Threatened Status for the Contiguous U.S. Distinct Population Segment of the Canada Lynx and Related Rule, Final Rule; Federal Register, March 24, 2000, Vol. 65, No. 58, pp. 16051–16086; and the LCAS) (Ruediger et al. 2000).

Conservation measures are binding measures the Bureau shall implement to facilitate the conservation of lynx. LAUs typically encompass both lynx habitat (may or may not be in suitable condition) and other areas (such as lakes, low-elevation ponderosa forest, and alpine tundra). These conservation measures generally apply only to habitat within LAUs. However, their use in areas of potential habitat not fitting the criteria of an LAU is encouraged. At this time there are no LAUs identified within the RMPPA. There is the potential for lynx to cross the RMPPA when traveling from one LAU to another.

Habitat and Species Conservation Measures

1. Where lynx are documented to occur, the Bureau will initiate coordination with the Service at the earliest possible date so that the Service can advise on project design. This should minimize the need to redesign projects at a later date to include Canada lynx conservation measures determined as appropriate by the Service.

2. BLM shall ensure that key linkage areas that may be important in providing landscape connectivity within and between geographic areas across all ownerships are identified, using best available science.

3. BLM shall ensure that habitat connectivity within and between LAUs is maintained.

4. BLM shall document lynx observations (tracks, sightings, along with date, location, and habitat) and provide these to the WYNDD; and request an annual update from them on all sightings for review in each FO.

5. Following a disturbance (blowdown, fire, insects) that could contribute to lynx denning habitat, BLM shall allow no salvage harvest when the affected area is smaller than 5 acres. Some exceptions apply, as specified in the LCAS timber management project planning standards.

6. BLM shall only allow pre-commercial thinning when stands no longer provide snowshoe hare habitat.

7. In aspen stands, BLM shall ensure that harvest prescriptions apply that favor regeneration of aspen.

8. BLM shall ensure that improvement harvests (commercial thinning, selection, etc.) are designed to retain and improve recruitment of an understory of small diameter conifers and shrubs preferred by hares.

9. In the event of a large wildfire, BLM shall ensure that a post-disturbance assessment prior to salvage harvest is conducted, particularly in stands that were formerly in late successional stages, to evaluate potential for lynx denning and foraging habitat.

10. BLM shall ensure that construction of temporary roads and fire lines are minimized to the extent possible during fire suppression activities and shall ensure revegetation of those that are necessary. Construction on ridges and saddles should be avoided if possible.

11. BLM shall ensure that trails, roads, and lift termini are designed to direct winter use away from diurnal security habitat.

12. To protect the integrity of lynx habitat, BLM shall ensure that (as new information becomes available) winter recreational special use permits (outside of permitted ski areas) that promote snow compacting activities in lynx habitat are evaluated and amended as needed.

13. BLM shall ensure that livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components is not allowed. This regeneration may take three years or longer, and will depend on site-specific conditions.

14. BLM shall ensure that grazing in aspen stands is managed to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones.

15. Within lynx habitat, BLM shall ensure that livestock grazing in riparian areas and willow patches is managed to maintain or achieve mid seral or higher condition to provide cover and forage for prey species.

16. On projects where over-snow access is required, BLM shall ensure use is restricted to designated routes.

17. Predator control activities, including trapping or poisoning on domestic livestock allotments on federal lands within lynx habitat, shall be conducted by Wildlife Services personnel in accordance with FWS recommendations established through a formal Section 7 consultation process.

18. BLM shall ensure that the potential importance of shrub-steppe habitats in the lynx habitat matrix and in providing landscape connectivity between blocks of lynx habitat is evaluated and considered as integral to overall lynx habitat where appropriate. Livestock grazing within shrub-steppe habitats in such areas should be managed to maintain or achieve mid seral or higher condition, to maximize cover and prey availability. Such areas that are currently in late seral condition should not be degraded.

19. In high-elevation riparian areas, especially those subject to grazing, BLM shall ensure that weed assessments and weed control are conducted to optimize habitat for snowshoe hares.

20. Within lynx habitat, BLM shall ensure that key linkage areas and potential highway crossing areas are identified, using best available science.

21. BLM shall work cooperatively and proactively with the Federal Highway Administration and State Departments of Transportation to identify land corridors necessary to maintain connectivity of lynx habitat and map the location of "key linkage areas" where highway crossings may be needed to provide habitat connectivity and reduce mortality of lynx (and other wildlife).

22. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volumes, traffic speeds, increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx habitat. Whenever rural dirt and gravel roads traversing lynx habitat are proposed for such upgrades, a thorough analysis should be conducted on the potential direct and indirect effects to lynx and lynx habitat.

23. BLM shall ensure that proposed land exchanges, land sales, and special use permits are evaluated for effects on lynx habitat and key linkage areas.

24. If activities are proposed in lynx habitat, BLM shall ensure that stipulations and conditions of approval for limitations on the timing of activities and surface use and occupancy are developed at the leasing and NOS/APD stages. For example, requiring that activities not be conducted at night, when lynx are active; and avoiding activity near denning habitat during the breeding season (April or May to July) to protect vulnerable kittens.

25. BLM shall ensure that snow compaction is minimized when authorizing and monitoring developments. BLM shall encourage remote monitoring of sites that are located in lynx habitat, so that they do not have to be visited daily.

Best Management Practices

BLM considers the following Best Management Practices (BMPs) to be non-binding conservation practices that will, if implemented, aid in the conservation of the Canada lynx. BMPs for the Canada lynx may be applied to areas within LAUs as well as areas not within LAUs. These BMPs for the Canada lynx may be implemented on a case-by-case basis as appropriate.

1. Evaluations should be made on Bureau-administered public lands adjacent to identified lynx habitat to determine whether fire suppression, forest type conversions, and other forest management practices have altered or have the potential to alter fire regimes and the functioning of forest ecosystems. Fire management practices should be adjusted where needed to produce forest composition, structure, and patterns more similar to those that would have occurred under historical succession and disturbance regimes, and that would not negatively impact the Canada lynx. Chemical treatments would be considered when beneficial to habitat composition and structure.

2. Design regeneration prescriptions to mimic historical fire (or other natural disturbance) events, including retention of fire-killed dead trees and coarse woody debris.

3. Design harvest units to mimic the pattern and scale of natural disturbances and retain natural connectivity across the landscape. Evaluate the potential of riparian zones, ridges, and saddles to provide connectivity.

4. Provide for continuing availability of foraging habitat in proximity to denning habitat.

5. In areas where recruitment of additional denning habitat is desired, or to extend the production of snowshoe hare foraging habitat where forage quality and quantity is declining due to plant succession, consider improvement harvests (commercial thinning, selection, etc). Improvement harvests should be designed to retain and recruit the understory of small diameter conifers and shrubs preferred by hares; retain and recruit coarse woody debris, consistent with the likely availability of such material under natural disturbance regimes; and maintain or improve the juxtaposition of denning and foraging habitat.

6. Provide habitat conditions through time that support dense horizontal understory cover, and high densities of snowshoe hares. This includes, for example, mature multi-storied conifer vegetation. Focus vegetation management, including timber harvest and use of prescribed fire, in areas that have potential to improve snowshoe hare habitat (dense horizontal cover) but that presently have poorly developed understories that have little value to snowshoe hares.

7. Burn prescriptions should be designed to retain or encourage shrub and tree species composition and structure that will provide habitat for snowshoe hares, red squirrels, or other alternate prey species. In situations where objectives can still be met, design treatments and fire suppression actions to maximize lynx denning habitat. Design burn prescriptions to promote response by shrub and tree species that are favored by snowshoe hare and thus regenerate or create snowshoe hare habitat (e.g., regeneration of aspen and lodgepole pine).

8. Consider the need for pre-treatment of fuels before conducting management ignitions.

9. Design burn prescriptions and, where feasible, conduct fire suppression actions in a manner that maximizes lynx denning habitat.

10. Map and monitor the location and intensity of snow compacting activities (for example, snowmobiling, snowshoeing, cross-country skiing, dog sledding, etc.) that coincide with lynx habitat, to facilitate future evaluation of effects on lynx as information becomes available. Discourage recreational

use in areas where it is shown to compromise lynx habitat. Such actions should be undertaken on a priority basis considering habitat function and importance.

11. Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow compacting activities are minimized or discouraged.

12. Identify and protect potential security habitats in and around proposed developments or expansions.

13. Determine where high total road densities (>2 miles per square mile) coincide with lynx habitat, and prioritize roads for seasonal restrictions or reclamation in those areas.

14. Minimize roadside brushing in order to provide snowshoe hare habitat.

15. Limit public use on temporary roads constructed for timber sales. Design new roads, especially the entrance, for effective closure upon completion of sale activities.

16. Limit public use on temporary and permanent roads constructed for access to timber sales, mines, and leases. Design new roads, especially the entrance, for effective closure. Upon project completion, reclaim or obliterate these roads.

17. Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity, and close newly constructed roads (e.g., for access to mines, leases, or timber harvest) in lynx habitat to limit public use during project activities. This requires the design of new roads, especially near forest entrances, to allow for effective closure upon completion of sale activities; and/or upon project completion, reclamation and obliteration of roads.

18. Initiate and/or augment interagency information and education efforts throughout the range of lynx in the contiguous states. Work cooperatively and proactively with WGFD and other agencies to reduce incidental take of lynx related to trapping and/or mistaken shooting of lynx, as well as to ensure that important lynx prey are conserved. Utilize trailhead posters, magazine articles, news releases, state hunting and trapping regulation booklets, etc., to inform the public of the possible presence of lynx, field identification, and their status. Provide for unified management direction via habitat conservation plans, conservation easements or agreements, and land acquisitions.

19. Where needed, develop measures such as wildlife fencing and associated underpasses or overpasses to reduce mortality risk.

20. Where applicable on Bureau-administered lands, key-linkage riparian travel corridors and habitat for potential lynx prey species should be enhanced or maintained (using the U.S. Forest Service guidelines when possible). On public lands, these management practices will be compatible with providing habitat connectivity. The BLM will strive to work with landowners to develop conservation easements, exchanges, or other solutions, as well as pursue opportunities for cooperative management with other landowners. Evaluate whether land ownership and management practices are compatible with maintaining lynx highway crossings in key linkage areas.

21. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volumes, traffic speeds, increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx

habitat. Whenever rural dirt and gravel roads traversing lynx habitat are proposed for such upgrades, a thorough analysis should be conducted on the potential direct and indirect effects to lynx and lynx habitat.

22. In land adjustment programs, identify key linkage areas. Work towards unified management direction via habitat conservation plans, conservation easements or agreements, and land acquisition.

23. Plan recreational development, and manage recreational and operational uses to provide for lynx movement and to maintain effectiveness of lynx habitat.

24. Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts on lynx. Where needed, develop protection measures such as wildlife fencing and associated underpasses or overpasses to reduce mortalities related to those potential lynx crossings.

25. Using best available science, develop a plan to protect key linkage areas on federal lands from activities that would create barriers to movement. Barriers could result from an accumulation of incremental projects, as opposed to any one project.

26. When opportunities for vegetation treatments come up, develop treatments that provide or develop characteristics suitable for snowshoe hare.

27. Protect existing snowshoe hare and red squirrel habitat.

Bald Eagle (*Haliaeetus leucocephalus*)

Listing Status: Federal—Threatened

Species Description

The bald eagle has a conspicuous white head and tail, a blackish-brown back and breast, and yellow feet and bill. The distinctive white plumage on the head and tail, for which the species is named, is not attained until 5 or more years of age. The female bald eagle is approximately 35 to 37 inches (0.89 to 0.94 m) long, with a wingspan from 79 to 90 inches (2.0 to 2.3 m). The male bald eagle is slightly smaller than the female, with a body length of 30 to 34 inches (0.76 to 0.86 m) and a wingspan of 72 to 85 inches (1.8 to 2.2 m). Wild bald eagles may live as long as 30 years, but the average lifespan is probably about 15 to 20 years.

Life History

Bald eagles usually are found near large rivers, streams, and lakes. Habitat consists of nesting habitat, communal winter roosting habitat, and foraging habitat that is located in some areas within the RMPPA.

Nesting Habitat

Bald eagles are found primarily along surface water sources (e.g., rivers, lakes, coasts), where their nests usually are located in large trees. They often use and rebuild the same nest each year, with the typical next about 5 feet in diameter. Nest trees are usually close to water, afford a clear view of the surrounding area, and often provide sparse cover above the nest.

Communal Winter Roosting Habitat

During winter, bald eagles congregate near rivers and reservoirs with open water, and often near large concentrations of waterfowl. Wintering eagles usually occupy river habitats between mid-November and late-April and use large cottonwoods, poplars, and other riparian trees as daytime perches and night roosts. They usually perch within a riparian corridor or along lakeshores and prefer areas with limited human activity.

Concentrated Foraging Habitat

Feeding areas, diurnal perches, and night roosts are fundamental elements of bald eagle winter range. Wintering bald eagles primarily occur where all three of these elements are in close proximity, although they will fly up to 15 miles where these elements are sparsely distributed across the landscape (Swisher 1964).

Food availability is probably the single most important factor affecting winter bald eagle distribution and abundance (Steenhof 1976). Fish and waterfowl are the primary sources of food for bald eagles, but they will also feed on carrion, rabbits, and other small rodents. The hunting area or home range patrolled by a bald eagle varies from 1,700 to 10,000 acres (688 to 4,047 hectares). Home ranges are smaller where food is present in great quantity.

Population Distribution

Bald eagles occur over most of North America at some time during the year, and they breed across at least half of the continent. The largest populations occur in the Pacific Northwest, western Canada, and southern Alaska.

RMPPA Distribution

There are 40 bald eagle nests located within the RMPPA. It should be noted that most of the distribution of bald eagles is confined to riparian and adjacent upland habitats.

Nesting Habitat

Forty bald eagle nests are currently known to occur within the RMPPA (Apple 2002, Redder 2002, Van Fleet 2002), however it should be noted that these nests are located on private, state, and federal lands. The status/current use of several of these nests is not known. Twenty-nine nests are located on privately owned lands, six on lands administered by the Bureau, and five on lands administered by other federal agencies. The majority of these known nests are located in riparian habitats associated with the North Platte, Encampment, and Little Snake Rivers.

Communal Winter Roosting Habitat

There are two communal winter roost sites located within the RMPPA. These communal roosts are located on private lands (Apple 2002, Redder 2002, Van Fleet 2002). One communal winter roost site occurs in riparian habitat associated with the Little Snake River. Another communal winter roost site is located within the Pedro Mountains along the North Platte River.

Concentrated Foraging Habitat

No concentrated foraging habitats, such as ice-free water bodies, crucial big game ranges with high winter mortality (e.g., starvation or vehicle collisions), or cattle or sheep stockyards, are known to exist in the

RMPPA (Apple 2002). General foraging habitats associated with rivers, streams, lakes, reservoirs, and open, upland habitats occur in the RMPPA and are suitable foraging areas for bald eagles when they support sufficient populations of prey.

Reproduction and Survivorship

Breeding for bald eagles typically begins in February or March, and the female eagle lays a clutch ranging from one to three eggs in March or April. Both the male and female incubate the eggs for about 35 to 40 days, resulting in usually 1 or 2 eaglets produced by the pair (Stalmaster 1987). Young eagles remain in the nest for about 75 days. After the breeding season, bald eagles congregate where food is plentiful, and they may continue to roost near the nest tree.

Management Status Recovery and Conservation Planning

There are several measures included in the existing Rawlins/Great Divide RMP that have been utilized over the years to directly or indirectly minimize impacts to the bald eagle. These actions included timing restrictions for surface disturbing activities and intensive management in specific areas. Existing protection measures included the following: (1) Objectives for the Jep Canyon ACEC and Shamrock Hills ACEC stated that surface disturbing activities would be intensively managed to maintain the productivity of nesting raptor pairs; (2) In Habitat Management Areas (Habitat Management Plans [HMP]), Cooperative Management Areas, and other portions of the RMPPA, site-specific management actions would be implemented to improve wildlife habitat—this included 271,000 acres (109,670 hectares) of raptor habitat; (3) Surface disturbing activities would be intensively managed in all raptor concentration areas to reduce physical disturbance of raptor habitat and disturbance of the birds, while allowing for development of coal and oil and gas, and the cooperation of owners of adjacent property would be sought in management of raptor nesting habitat. In addition the Bureau would consider consolidating public land to obtain important wildlife habitat areas, such as raptor concentration areas; (4) To protect important raptor nesting habitat, activities or surface use would not be allowed from February 1 through August 15 within certain areas encompassed by the authorization. The same criteria apply to defined raptor winter concentration areas from November 15 through April 30; (5) Prior to conducting any onsite activities, inventories or studies would be required in accordance with Bureau and Service guidelines to verify the presence or absence of raptors; and (6) For the protection of nesting eagles and prairie falcons and the their associated buffer zones, no surface operations will be allowed in such areas as long as the Service determines that nest viable.

The following habitat conservation measures and species conservation measures will be implemented within the RMPPA in areas where there is the potential for the bald eagle to occur in nesting, communal winter, and/or foraging habitat. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the bald eagle.

Habitat Conservation Measures

1. Surface disturbing activities that may affect bald eagle habitat will be intensively managed in all Raptor Concentration Areas (RCAs) to reduce physical disturbance of bald eagle habitat and disturbance of the birds. This will entail a case-by-case examination of proposals to determine potential effects and appropriate mitigation to minimize adverse effects to bald eagles and their habitat. Intensive management may vary from year to year and includes the use of inventory, proper distance restrictions, and seasonal or timing restrictions.

2: RCAs will be open to oil and gas leasing, and a plan of operations (BLM 3809) will be required for disturbances regardless of the number of acres that will be disturbed for the protection of bald eagles.

3: Bureau-administered lands that are within 1 mile of an integral part of bald eagle habitats, including nests, communal winter roosts, and foraging/concentration areas, will not be exchanged or sold.

Species Conservation Measures

1. Surface disturbance or other disruptive activities potentially disruptive to nesting bald eagles will be prohibited within 1 mile of a bald eagle nest during the period of February 1 and August 15 for the protection of nesting areas.

2. In addition, minimal human activities and habitat alterations, as defined in Appendix II and Appendix Table F-2 of the Programmatic Statewide Bald Eagle Biological Assessment (BLM 2003), that may disturb bald eagles will be restricted within suitable habitats that occur within bald eagle buffer zones.

- Zone 1 (within 1/2-mile February 1 to August 15): intended to protect active and alternative nests. For active nests, minimal human activity levels are allowed during the period of first occupancy to 2 weeks after fledging.

- Zone 2 (within 1/2–1 mile from the nest February 1 to August 15): intended to protect bald eagle primary use areas and permits light human activity levels.

- Zone 3: designated to protect foraging/concentration areas year-round. This zone would include one of two larger areas, depending on habitat types:

    a. 2.5 miles extending in all directions from the nest

    b. 1/2-mile from the streambank of all streams within 2.5 miles of the nest. Site-specific habitat types and foraging areas will be evaluated to determine which Zone 3 buffer applies. Zone delineation depends on habitat types. Exceptions may be made after consultation with the Service.

3. Surface disturbing or other disruptive activities potentially disruptive to a bald eagle communal roost will be prohibited within 2 miles of the communal roost during the period of February 1 and August 15 for the protection of communal roost areas. A communal roost is defined as an area usually less than 10 acres in size that contains or has contained ≥6 bald eagles on any given night. When required, the Bureau will develop a site management plan (in cooperation with the Service) to identify potential impacts to active bald eagle nests and/or communal roost sites.

4. Surface disturbing or other disruptive activities potentially disruptive to identified bald eagle communal winter roost sites will be prohibited within 1 mile of the winter roost site between November 1 and April 1 for the protection of wintering bald eagles.

5. No ground disturbing activities will be permitted within 1/2-mile of active bald eagle communal winter roost sites year-round. This buffer zone restriction may be adjusted based on site-specific information through coordination with (including written concurrence) the Service, Wyoming Field Office.

6. Well locations, roads, and ancillary facilities, and other surface structures requiring a repeated human presence, will not be allowed within ½ mile of active bald eagle nests. The distance may vary depending on factors such as nest activity, natural topographic barriers, and line-of-sight distance.

7. Appropriately timed surveys in bald eagle habitats will be conducted prior to any activities and subsequent authorization of activities that may disturb bald eagles or their habitats. A qualified biologist would be approved by the Bureau to conduct such bald eagle surveys. All nest surveys should be

conducted using standard procedures that minimize the potential for adverse effects to nesting raptors. In the event species occurrence is verified, the proponent may be required to modify operational plans, at the discretion of the authorized officer, to include the appropriate measures for minimization of effects to the bald eagle and its habitat.

8. The Bureau will monitor and restrict, when and where necessary, authorized or casual use activities that may adversely impact bald eagles or their habitat, including but not limited to recreational mining and oil and gas activities. Monitoring results should be considered in the design and implementation of future projects.

9. Each year the Bureau will verify the status (active vs. inactive) of known bald eagle nests, communal winter roosts, and concentration areas on lands administered by the Bureau within the RMPPA. As a matter of maintaining inventory information, the Bureau will coordinate annually with the Service, WGFD, and other appropriate entities to determine the status of known and new bald eagle nests, communal winter roosts, and other concentration areas. Known bald eagle nests, communal winter roosts, and concentration areas will be assumed active if status has not been verified.

10. To monitor the impacts of site-specific projects authorized under the RMP that are likely to adversely affect bald eagles, the Bureau will prepare a report describing the progress of each such site-specific project, including implementation of the associated reasonable and prudent measures, and impacts to the bald eagle (50 CFR 402.14[i][3]). The report, which will be submitted annually to the Service, Wyoming Field Office, by January 1 beginning after first full year of implementation of the Proposed Action, shall list and describe (a) adverse effects resulting from activities of each site-specific project, (b) when and if any level of anticipated incidental take is approached (as allowed by separate Incidental Take Statements from site-specific formal consultation), (c) when and if the level of anticipated take (as allowed by separate Incidental Take Statements from site-specific formal consultations) is exceeded, and (d) results of annual periodic monitoring which evaluates the effectiveness of the reasonable and prudent measures. This will include items such as (i) assessment of whether implementation of each site-specific project is consistent with that described in the BA, (ii) compliance with terms and conditions, and (iii) documentation of sightings of bald eagles during activities of each site-specific project.

Best Management Practices

Best management practices (also known as BMPs) would be applied to surface disturbing and other disruptive activities to maintain or enhance bald eagles and their habitats.

Proponents of Bureau-authorized actions should be advised that roadside carrion can attract foraging bald eagles and potentially increase the risk of vehicle collisions with bald eagles feeding on carrion. When large carrion occurs on the road, appropriate officials should be notified for necessary removal.

The Bureau should coordinate with APHIS, Wildlife Services Division, to minimize potential impacts to the bald eagle and its habitats from pest/predator control programs that may be included in the local animal damage control plan. The Service should also be included n this coordination.

Proposed and future water projects should not be designed to discharge into drainages or reservoirs occurring within 500 feet of county roads and highways. This measure is intended to minimize vehicle collisions with wildlife using the water source and subsequent eagle-vehicle collision.

The Bureau should provide educational information to project proponents and the general public concerning the following topics: appropriate vehicle speeds and the associated benefit of reduced vehicle

collisions with wildlife, use of lead shot (particularly over water bodies), use of lead fishing weights, and the general ecological awareness of habitat disturbance.

The Bureau should coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact the bald eagle and its habitats.

The Bureau should periodically review existing water quality records (e.g., Wyoming Division of Environmental Quality [WDEQ], WGFD, U.S. Geological Survey [USGS], etc.) from monitoring stations on or near important bald eagle habitat (i.e., nests, roosts, concentration areas) on public land for any conditions that could potentially adversely affect the species. If water quality problems are identified, the Bureau should contact the appropriate jurisdictional entity to cooperatively monitor the condition and/or take corrective action.

Western Yellow-billed Cuckoo (*Coccyzus americanus*)

Listing Status: Federal Candidate

Species Description

The Western population of the yellow-billed cuckoo (cuckoo) is a slender, long-tailed, robin-sized bird, about 12 inches (0.3 m) long, with a moderately long, down-curved bill. It is brownish-gray in color, with white underparts and a striking yellow base of the lower mandible, for which the species is named. The outer tail feathers have distinctive broad white tips, giving the appearance of six large white spots on the underside.

Life History

Cuckoos are primarily found in open, streamside deciduous woodland with low scrub vegetation. They generally prefer large tracts of deciduous riparian woodlands, cottonwood stands for foraging, and willow thickets for nesting. They also require relatively large riparian tracts below 7,000 feet (2,134 m) for breeding, which is severely limited in Wyoming (Wyoming Natural Diversity Database 2002). Canopy cover of at least 50 percent in both the understory and overstory is preferred, according to habitat models established for the Western population. Cuckoos generally are absent from heavily forested and urban areas.

Although more than 75 percent of the cuckoo's diet comprises grasshoppers and caterpillars, they have been known to eat beetles, cicadas, wasps, flies, lacewings, mosquito hawks, and other insects. They have also been known to take eggs and the young of other birds. Sometimes they will eat small fruits and nuts.

Population Distribution

The cuckoo formerly ranged across southern Canada, the United States, and northern Mexico. It has been nearly extirpated in the West and is restricted to small isolated populations. It is considered extremely rare in the Northern Rockies and Great Plains. An estimated 90 percent of the bird's riparian habitat in the West has been destroyed or degraded as a result of human activity (e.g., conversion to agriculture, dams and river flow management, bank protection, overgrazing, and competition from exotic plants such as tamarisk) (Laymon 1987, 2000; Hughes 1999). The species is no longer found in British Columbia, Washington, Oregon, or Nevada.

Little is known about the historic distribution of cuckoos in Wyoming: there have been relatively few reported observations. Breeding pairs may be found in the Green River and Powder River basins along the North Platte River to Casper, and along the Henry's and Black's Fork rivers. One observation of the cuckoo in 1994 was made at Seedskadee National Wildlife Refuge, which is west of the RMPPA.

RMPPA Distribution

Within the RMPPA, the type of habitat the cuckoo prefers is severely limited. These areas would be confined to cottonwood-willow riparian habitats west of the Continental Divide. This would be primarily in the Little Snake River basin.

Reproduction and Survivorship

Cuckoos arrive on their Western breeding grounds in mid-June and leave for South America by late August. Breeding often coincides with the appearance of large numbers of spring insects. Cuckoos have the shortest combined incubation/nesting period of any bird species. Clutch size usually ranges between three and five, and both males and females share egg incubation. Though unable to fly, the newly fledged young are adept crawlers, traveling up to 150 feet (about 46 m) on their first day out of the nest. After 3 to 4 weeks, they are able to begin their migration to South America (Center for Biological Diversity 2002).

Mating of cuckoos begins with the female raising and lowering her tail several times when a male is nearby. The male then snaps off a twig and brings it to her, landing directly on her back. The male places the twig crosswise in the female's bill at which point copulation begins, and ends seconds later.

Management Status Recovery and Conservation Planning

The following habitat conservation measures and species conservation measures will be implemented within the RMPPA in areas where there is the potential for the Western yellow-billed cuckoo to occur in nesting and/or foraging habitat. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Western yellow-billed cuckoo.

Habitat Conservation Measures

1. Surface disturbing activities would be avoided within 500 feet of perennial waters and wetland/riparian areas for protection of Western yellow-billed cuckoo and identified habitat.

2. Boat and raft landing areas will not be developed, and outfitting camps will not be permitted, in Western yellow-billed cuckoo habitat.

Species Conservation Measures

1. Surface disturbing or other disruptive activities will be prohibited within 1/2-mile of identified habitat during the period April 15 to August 15 for the protection of nesting Western yellow-billed cuckoos.

Best Management Practices

1. Best management practices would be applied to surface disturbing and other disruptive activities to maintain or enhance the Western yellow-billed cuckoo and their habitats.

2. Incorporate yellow-billed cuckoo habitat guidelines into livestock Standards and Guidelines assessments.

3. Where possible, biological control of pests would be used rather than chemical control. Where needed, pesticide use would be applied by hand within 1/4-mile of cuckoo habitat, and only in cases where insect or noxious and invasive weed outbreaks have the potential to degrade area ecological health. Outside the 1/4-mile buffer, aerial application of pesticides would be carefully planned to prevent drift. The Bureau shall work with APHIS and the Service to select a pesticide and method of application that will most effectively manage the infestation and least affect the Western yellow-billed cuckoo.

4. Ensure adequate livestock practices to protect yellow-billed cuckoo habitat. These include but are not limited to placement of salt and mineral blocks, livestock water locations, fencing, livestock handling facilities, and season of use.

5. All high-quality riparian areas of 20 hectares (49.42 acres) or more shall be managed to preserve, protect, and, if necessary, restore natural functions to minimize degradation of streambanks and the loss of riparian habitat.

6. When necessary or required, fence known occupied cuckoo habitat to exclude or shorten the duration of livestock use where livestock grazing is determined to impede regeneration of the habitat. This will stabilize and protect eroding streambanks in cuckoo habitat.

7. Avoid building roads or new trails parallel to streams in riparian zones or through wet meadows that have the potential or are identified as containing habitat for the Western yellow-billed cuckoo. If stream crossings are required, they shall be constructed at right angles to minimize impacts to riparian vegetation, streambanks, soils, and water quality. Roads and trails shall be placed near current habitat edge areas to reduce fragmentation of larger blocks of pristine habitat. Combine multiple roads and ROWs to one stream-crossing site.

8. Avoid depleting ground water and diverting streams outside their natural stream channels in riparian areas that contain potential Western yellow-billed cuckoo habitat.

9. Maintain beaver populations where they occur in cuckoo habitat and encourage reintroduction into areas that were historically occupied by beavers in Western yellow-billed cuckoo habitat.

10. In identified Western yellow-billed cuckoo habitat, implement riparian monitoring programs to establish baseline data and identify changes that have occurred, to evaluate both long-term and short-term impacts and/or benefits to the birds.

11. Manage for stable or increasing population of cottonwood-willow vegetation in areas identified as Western yellow-billed cuckoo habitat. Ensure that all age classes are present (seedling, young, mature, and decadent), with more seedlings present than decadent plants, and more young plants present than mature plants.

12. Prescribed fire would only be used to maintain or enhance yellow-billed cuckoo habitat. Restrictions such as smoke dispersal, heat intensity, buffer zones, or timing stipulations would be incorporated into the fire plan.

Wyoming Toad (*Bufo baxteri*)

Listing Status: Federal—Endangered, February 16, 1984

Species Description

The Wyoming toad is small, at 2 to 3.25 inches (5.1 to 8.3 cm) in size. The females weigh approximately 1.2 ounces (35 grams), and the males weigh approximately 0.88 ounces (25 grams). The cranial crests fuse medially to form an elongated boss, or ridge with a median grove, between the eyes. The tympanum is round and smaller than their eyes. They Wyoming toad is green or gray to brown, with dark warts; the males have a dark throat. This toad has a narrow light line down the middle of the back, the underside is spotted, and the toad's parotoid glands are oval and somewhat indistinct.

Life History

Adults emerge from hibernation in May when the daytime temperatures go above 70 degrees Fahrenheit. They frequently use abandoned pocket gopher and ground squirrel burrows as hibernacula. Once abundant in the wetlands and irrigated meadows of Wyoming's southeastern plains, the Wyoming toad is now restricted to small seepage lakes and ponds in the Laramie Basin in Albany County (Baxter and Stone 1985). Their diet includes ants, beetles and other arthropods.

Population Distribution

The Wyoming toad is thought to be a relictual population left behind as glaciers retreated. Some authors have argued that the Wyoming toad is a full species, but Porter (1968) presented evidence that it is subspecifically distinct from *Bufo hemiophrys hemiophrys* (Federal Register 1984). Prior to about 1970, the Wyoming toad was relatively abundant in the Laramie Basin, but now the subspecies is confined to wetland habitats adjacent to Mortenson Lake, Mortenson National Wildlife Refuge (Baxter and Stone 1985). This is the only wild population of these toads.

RMPPA Distribution

In the RMPPA the only naturally occurring populations of Wyoming toad are found adjacent to Mortenson Lake, within the Mortenson National Wildlife Refuge. The decline of the Wyoming toad can be attributed to a number of significant events, including habitat loss or degradation, predation, drought cycles, chytrid fungus, and pesticides.

Historic ranching practices involved flooding the plains adjacent to the Little Laramie and Big Laramie rivers. Changes in irrigation practices may have resulted in the drying out of former habitats before tadpole development was complete. Drainage of habitat for nonirrigation uses may have contributed to the decline of the toad.

Pesticides are believed to be one of the primary factors contributing to the decline of the species. The use of the herbicide Atrazene is known to decimate *Bufo* populations, and it can be introduced into watersheds in sufficient levels to kill *Bufo* eggs and tadpoles.

Widespread aerial spraying of fenthion (commercially known as Baytex) for mosquito control occurred around the time the toad numbers started to fall. The mosquito control technique of mixing this with diesel fuel began in 1975. When applied with little control of drift, the spray proved to be highly toxic to toads. Some evidence indicates that diesel fuel alone is toxic to amphibians. This pesticide was subsequently not registered with the EPA after 1992.

It is interesting to note that the last wild toad population, found in 1987, was on lands of the future Mortenson National Wildlife Refuge, where mosquito spraying was not allowed. This could be an indication that insecticide spraying and reduced mosquito populations may be a direct affect on populations.

Pesticides may also contribute to the increase in fungal outbreaks that have caused significant population declines. This may be due to pesticides causing a reduction in immunity factors that would normally protect the species. Of particular concern is the recent outbreak of amphibian chytrid fungus, *Batrachochytrium dendtrobatidis*, which causes chytridomycosis in the species that leads to low survivability of these species. Whether these outbreaks are a result of recent environmental changes or are naturally occurring is still unknown.

Reproduction and Survivorship

Breeding of the Wyoming toad occurs from mid-May to mid-June. Strings of 2–5,000 heavily pigmented eggs are laid in the water. The tadpoles metamorphose into toads in 4–6 weeks. The toads then move back into hibernation in mid-September.

Management Status Recovery and Conservation Planning

In 1991 the Service and WGF drafted a recovery plan for the toad. A captive breeding component was included in this plan. Captive breeding populations are now found at eight zoos around the country and at the Saratoga National Fish Hatchery and Sybille Wildlife Research Center, both in Wyoming. There are now nearly 600 toads in captivity. Each spring a number of the offspring produced are held back for the captive breeding program. The rest are returned to Wyoming, where they are released as tadpoles or toadlets.

In 1996 the American Zoo and Aquarium Association (AZA) developed a Species Survival Plan (SSP) that formalized a cooperative program with the Service and WGFD. The following habitat conservation measures and species conservation measures will be implemented within the RMPPA in areas where there is the potential for the Wyoming toad to occur in riparian habitat. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Wyoming toad. In addition, the Safe Harbor Agreement was signed and implemented to conserve the species.

Habitat Conservation Measures

1. Rawlins FO biologists will conduct or oversee surveys (following established protocol), or assume species presence, for all likely affected Wyoming toad habitat, or potential habitat prior to authorizing surface disturbing activities. Proposed projects will be designed and locations selected to minimize disturbances to species and habitat and if the avoidance of adverse affects is not possible, the BLM will re-initiate consultation with the USFWS. Projects will not be authorized during critical time periods to reduce impacts to this species

2. The BLM will participate with development of species specific recovery plans in coordination with the USFWS and other agencies. Populations and habitat on BLM-administered lands will be monitored to determine if recovery objectives are being met.

3. The BLM will place a No Surface Occupancy (NSO) stipulation on any new leases on sites where toads are released. These Wyoming toad release sites will be withdrawn from mineral claims and development under the new regulations developed under 43 CFR 3809.

4. Roads that have the potential to impact the Wyoming toad and are not required for routine operations and maintenance of developed and abandoned projects will be reclaimed as directed by the BLM. As necessary, these roads will be permanently blocked, re-contoured, reclaimed, and re-vegetated to benefit habitat for the Wyoming toad.

5. Construction activities located within potential and/or known Wyoming toad habitat will be minimized through construction site management by using previously disturbed areas, using existing ROWs, and designating limited equipment/materials storage yards and staging areas.

6. Construction activities located within 500 feet of open water and/or 100 feet of intermittent or ephemeral channels in potential and/or known habitat for the Wyoming toad will be avoided. Stream crossings for roads and pipelines will be constructed during the period of lowest flow (i.e., late summer or fall) and perpendicular to flow. No surface water or shallow ground waters in connection with surface waters will be utilized for proposed projects. Proper erosion control techniques, such as water bars, netting, rip-rap, and mulch will be implemented.

7. Riparian habitats will be maintained, improved or restored to provide wildlife habitat, improve water quality and enhance forage conditions. When planting or seeding vegetation in areas identified as Wyoming toad habitat, only native species will be selected.

8. Pesticide applications and biological control agents will be allowed within known Wyoming toad habitat on a case-by-case basis. Where possible, biological control of pests would be used rather than chemical control. Where needed, pesticide use will be applied by hand within ¼-mile of habitat and only in cases where insect or weed outbreaks have the potential to degrade area ecological health. Outside the ¼-mile buffer, aerial application of pesticides will be carefully planned to prevent drift. The BLM will work with the Animal and Plant Health Inspection Service (APHIS) and the USFWS to select a pesticide and method of application that will most effectively manage the infestation and least affect the species.

9. The FO policy for OHV restrictions to existing/designated roads and vehicle routes or closures, if required, will be implemented to protect Wyoming toad populations and habitat.

10. If a Wyoming toad is documented during project construction activities, project activities will cease until sufficient protection measures are developed by the BLM and in coordination with the USFWS. In the event that a Wyoming toad is found, killed, or injured during project activities, or a dead individual is encountered, the USFWS Wyoming Field Office (307-772-2374) and the USFWS Law Enforcement Office (307-261-6365) will be notified within 24 hours of discovery.

11. BLM-administered public lands that contain identified habitat for the Wyoming toad will not be exchanged or sold, unless it benefits the species.

Species Conservation Measures

1. When project proposals are received, BLM will initiate coordination with the USFWS at the earliest possible date so that both agencies can advise on project design. This should minimize the need to redesign projects at a later date to include Wyoming toad conservation measures, determined as appropriate by the USFWS.

2. In wetlands that contain habitat for the Wyoming toad, wading boots will be bleached with a 10 percent solution to prevent the spread of Chytrid fungus.

Best Management Practices

1. Train enforcement personnel on protection of the Wyoming toad and its habitat, its status, and current threats to its existence.

2. Educate resource specialists, rangers, and fire crews about the Wyoming toad and its habitat, particularly for fire suppression projects planned for this general area.

3. Educate resource specialists and promote practices to minimize the spread of Wyoming toad diseases including chytridiomycosis.

4. Develop and prioritize management practices through a steering committee and assist the USFWS with research.

5. Establish monitoring, biological, ecological, and life history studies as funding and staffing allow, such as studies regarding monitoring the success of reintroduction efforts and occurrence of disease in new Wyoming toad populations.

6. Monitor primary and secondary Wyoming toad habitats for changes in water quality.

7. Linear crossings, such as pipelines or roads across the above areas, should be considered on a case-by-case basis with intensive management to protect habitat for the Wyoming toad. Intensive management may vary from year to year and includes the use of proper distance restrictions, seasonal or timing restrictions, rehabilitation standards, and use of BMPs.

8. Buffers should be established around water bodies and wetlands within in the Laramie basin for pesticide use (taking into account their toxicity, intended use, and method of application) until areas are searched for two consecutive years and cleared (no toads present in either year).

9. The BLM should work towards developing reintroduction sites in coordination with the USFWS and WGFD and maintain the integrity of these sites for the survival of the toad.

10. Coordinate with the USFWS and private landowners to ensure that the toad and its habitat are adequately protected.

11. When applicable, pursue withdrawals in habitat where there is identified historic and/or current toad breeding locations, as well as in areas where toads have been released. In addition, implementing NSOs to these areas may be required to achieve toad recovery objectives.

12. Develop recreational activity restrictions in accessible areas located within or adjacent to primary or secondary Wyoming toad habitats.

13. Establish grazing restrictions within and adjacent to primary and secondary habitat as well as the Mortenson Lake NWR and Hutton Lake NWR.

North Platte River and Colorado River Species

Introduction

Several avian, fish, and one plant species, occurring as residents or migrants in the Platte River and Colorado River basins (inclusive of major tributaries) have experienced material declines in abundance, distribution, and the availability of suitable habitats since the turn of the 20th century. The reasons for

these declines are multifarious, but the two most pervasive and encompassing reasons are (1) the effects of water developments, including dam construction, diversion, and consumptive use of water, and concomitant changes in river flow and channel characteristics; and (2) introductions of non-native aquatic species.

Water developments such as dams, reservoirs, and irrigation diversions have altered natural surface water hydrographs (timing, magnitude, and duration). Altered hydrographs can indicate negative effects on the ecosystems of river-dependent species such as the interior least tern and pallid sturgeon. Changes in the relative magnitudes of regulated flows before nesting versus during nesting have resulted in more frequent inundation of the nests of federally listed avian species (e.g., piping plover and interior least tern). Too little water at certain times of the year can subject federally listed birds to excessive predation during periods of nesting and roosting (Gordon et al. 1992); this condition can also limit the availability of forage fish to the pallid sturgeon. In addition, reductions in the magnitude and frequency of high flows can adversely impact the characteristics of flood-prone areas and wetlands and the ecological benefits they provide to federally listed species: these conditions can allow vegetation to encroach on less vegetated areas, the result of which is a narrowing of relatively open channels (Gordon et al. 1991). Finally, in the lower Platte River, pallid sturgeon may lose important migratory cues that were probably influenced by historically unregulated higher flows in the spring of the year; relatively low spring flows have negatively impacted habitat conditions for pallid sturgeon that were dependent on historical levels of sediment transport and deposition and on the influx of greater amounts of organic material.

Habitat alterations and habitat fragmentation due to dams, reservoirs, and regulated flows have resulted in changes in habitat availability, habitat distribution, and habitat quality. In addition, introductions of non-native fishes, such as rainbow trout, brown trout, and channel catfish, have resulted in competitive exclusion and diminished abundance of native fishes in much of their historic ranges. Similar impacts have reduced populations of federally listed fishes in the upper Colorado River Basin, such as the Colorado pikeminnow. Finally, the inundation or diminution of wetland habitats due to flow regulation and reduced water availability can negatively impact wetland plants. In the RMPPA, water depletions, though they occur hundreds of miles upstream, can affect population abundance and the availability of suitable habitats for federally listed birds, fishes, and one plant in the Platte River and upper Colorado River basins.

The Bureau has historically authorized several types of activities and associated infrastructure within the RMPPA that constitute water depletions in both the North Platte and Colorado River basins—a depletion to river flows occurs when tributary surface water or groundwater is removed from its source (to the extent that some of the water is not returned to its source) to be used elsewhere for a beneficial use. These activities include the development of livestock watering facilities, irrigation projects, wetlands, reservoirs for recreational fisheries, habitat restoration projects, as well as fire suppression and oil and gas development.

Consultation History and Historic Depletions

The Bureau completed a formal consultation for the reauthorization of livestock watering facilities in the Colorado River Basin in October 2000. In addition the Bureau has completed formal consultation on several projects in the Colorado River Basin that have occurred subsequent to the issuance of the BO on Colorado River Depletions Resulting from Reauthorization of Livestock Watering Facilities, Wyoming, of September 21, 2000. The Programmatic Biological Assessment for Minor Water Depletions Associated with Reissuing of Bureau Grazing Leases in the Platte River Basin of July 1, 1999, addressed existing minor depletions in the Platte River Basin. The Bureau has also completed subsequent formal consultation on several additional projects in the Platte River Basin. Table 3 summarizes historic water

depletions for the Colorado River and Platte River systems for which formal consultation has been conducted prior to the issuance of these programmatic opinions.

Table 3. Historic Water Depletions For Which Consultation Has Occurred Subsequent to the Issuance of the Aforementioned Programmatic Opinions:

Basin	# Projects	Depletion (total ac ft/yr)
Platte River	21	6
Colorado River	48	145

Potential New Depletions

Most foreseeable future water depletions (e.g., stock water development, wells at campgrounds) are likely to be minor (<25 acre-ft/yr). Potential projects, which may be implemented over the life of the RMPPA, are shown in Table 4. New projects that affect the timing or quantity of water will be consulted on through the appropriate processes and are presented here only to provide an estimate of the number and magnitude of activities that may occur over the life of the RMP.

Table 4. Potential New Activities That May Deplete Water During Implementation of the RFO RMP.

	Platte River Basin			Colorado River Basin		
Type of Project	# Of Projects	Estimated Water Use	Total (20-yr) Water Use	# Of Projects	Estimated Water Use	Total (20-yr) Water Use
Water developments and Channel Restoration Projects	110	0.29 acre-ft/project	32 acre-ft	250	2.96 acre-ft/project	740 acre-ft
Vegetation Treatments and Wildland fire suppression	-	-	0.31 acre-ft	-	-	0.31 acre-ft
Well construction activities, including pipelines	1,631	0.41 acre-ft/well	669 acre-ft	3152	0.65 acre-ft/well	2049 acre-ft
Lands and Reality Actions (Ditch ROW and small reservoir approval)	2	10 acre-ft/project	20 acre-ft	4	10 acre-ft/project	40 acre-ft

Water development projects may consist of small impoundments designed to capture runoff events. These projects are associated with livestock management activities and wetland creation. Channel restoration projects such as headcut remediation structures may have increased evaporation in the impoundment upstream. The magnitude of depletions associated with these projects, as depicted in Table 4, was estimated from the average development rate for these types of projects between the years 1999–2003.

The use of water by the fire management program was considered for both prescribed fire (vegetation treatments) and wildland fire suppression. When conducting prescribed fire operations, water used in suppression is obtained from Rawlins municipal sources. For this reason it is not expected that the use of water for prescribed fire operations would cause an additional depletion of water from either the Platte River Basin or Colorado River Basin. The amount of water used in wildland fire suppression activities over the life of this plan has been estimated by extrapolating the average volume of water used per year.

The use of water during well drilling and operation activities has been calculated by estimating the average volume of water used for all activities associated with production per well (1.1 af per well for conventional gas wells and 0.3 af per well for coalbed methane wells) and multiplying by the estimated number of conventional and coalbed methane wells anticipated over the next 20 years by water basin. Within the Colorado River Basin, 1,444 conventional gas wells and 1,708 coalbed methane wells are anticipated. Within the North Platte River Basin 223 conventional gas wells and 1,407 coalbed methane wells are anticipated. Well construction activities include well drilling and completion operations, hydrostatic testing for local pipelines, and dust abatement. Though these figures estimate total water usage by well construction activities and hydrostatic testing, these figures do not necessarily represent water depletions as only a portion of water used would exit the system or be unavailable during critical periods downstream.

Land and Reality actions such as Rights-of-Ways for diversion ditches and small reservoir projects may occur based on private use of water that requires the crossing of public lands. Large reservoirs would most likely include direct consultation by the proponent, for example the Yampa Basin River Management Plan and thus this estimate is only meant to include small projects that are larger in scope than the livestock water development described earlier.

North Platte River Species and Critical Habitat

Federally listed species in the Platte River that may be affected by water depletions resulting from Bureau-authorized actions within the RMPPA are listed in Table 5. Designated Critical habitat for the whooping crane and the northern Great Plains breeding population of the piping plover may also be adversely affected.

Table 5. Federally Listed Species That Are Native to the Platte River and May Be Affected By Water Depletions Resulting From Bureau–authorized Actions Within the RMPPA

Common Name	Scientific Name	ESA Status	Designated Critical Habitat
Whooping Crane	*Grus Americana*	Endangered	Yes
Bald Eagle	*Haliaeetus leucocephalus*	Threatened	No
Eskimo Curlew	*Numenius borealis*	Endangered	No
Piping Plover	*Charadrius melodus*	Threatened	Yes
Interior Least Tern	*Sterna antillarum*	Endangered	No
Western prairie fringed orchid	*Platanthera praeclara*	Threatened	No
Pallid Sturgeon	*Scaphirhynchus albus*	Endangered	No

Whooping Crane (*Grus Americana*)

Listing Status: Federal—Endangered

Species Description

The whooping crane stands 5 feet (1.5 m) tall and has a long sinuous neck and long legs. Its snowy-white body feathers are accented by jet-black wingtips and a red and black head with a long pointed beak. The whooping crane's wings measure about 7 feet (2.1 m) across. The whooping crane is named for its call, which has been described as a shrill bugle-like trumpeting.

Status and Distribution of Species

Listed Endangered (32 FR 4001, 1967 March 11) except where nonessential experimental population (66 FR 33903–33917, 2001 June 26; 62 FR 38932–38939, 1997 July 21; and 58 FR 5647–5658, 1993 January

22) in Colorado, Indiana, Florida, New Mexico, Utah, and the western half of Wyoming. Presently, the distribution of the whooping crane is limited as a result of habitat loss and extremely low population size. Whooping cranes breed near Wood Buffalo National Park (Northwest Territories and Alberta). The birds winter near Arkansas National Wildlife Refuge (Texas Gulf Coast), and on occasion they venture northeast into Louisiana. Migrating between these locations, whooping cranes use the Platte River flyway.

Habitat Associations and Life History Requirements

Whooping cranes use a variety of habitats during migration (Howe 1987, 1989; Lingle 1987; Lingle et al. 1991), including croplands (for feeding) and large palustrine (marshy) wetlands (for roosting). Whooping cranes also roost in riverine habitat, most notably the Platte River, Middle Loup River, and Niobrara River in Nebraska; Cimarron River in Oklahoma; and the Red River in Texas (USFWS confirmed sighting records). Cranes roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

Threats from Human Activity

Primary threats to the whooping crane population due to human activities include draining wetland habitats, coastline development, and human activity near breeding and nesting sites.

Environmental Consequences and Viability

Because whooping crane populations are extremely small, their genetic integrity and persistence are highly uncertain. Primary threats due to human activities include draining of wetland habitats, coastline development, and human activity near breeding and nesting sites.

Management Status and Recovery and Conservation Planning

Recovery Plan completed on February 11, 1994.

Determination

Given the precarious state of this species and the great cumulative effects of depletions on other lands, the Service has great concern about the effect of any water depletion, however small, on water level in the Platte River in Nebraska. Implementation of the RFO RMP is likely to adversely affect the whooping crane. The Bureau will continue participation in the Platte River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Platte River Agreement.

2. For projects that cause depletions to the Platte River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Platte River species.

Best Management Practices

1. When developing or improving water source in the Platte River system, the Bureau would consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Whooping Crane (*Grus Americana*) Critical Habitat

Listing Status: Critical Habitat, identified March 1979, amended July 1997

Critical Habitat Description

Critical Habitat for the whooping crane has been designated along the Platte River between Lexington and Denman, Nebraska, within T. 32 N., R. 18 W.; T. 52 N., R. 19 W.; T. 32 N., R. 20 W.; T. 32 N., R. 21 W.; and T. 32 N., R. 22 W.

Determination

Given the precarious state of this species and the great cumulative effects of depletions on other lands, the Service has great concern about the effect of any water depletion, however small, on water level in the Platte River in Nebraska. Implementation of the RFO RMP is likely to adversely affect the designated Critical habitat of the **whooping crane**. The Bureau will continue participation in the Platte River Program.

Habitat Conservation Measures

1. The Bureau will continue participation in the Platte River Agreement.

2. For projects that cause depletions to the Platte River system Critical habitat, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Platte River species Critical habitat.

Best Management Practices

1. When developing or improving water source in the Platte River system, the Bureau would consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Eskimo Curlew (*Numenius borealis*)

Listing Status: Federal—Endangered

Species Description

The Eskimo curlew resembles a whimbrel (a relatively abundant species which also nests on tundra) but is much smaller, and the crown is less strongly patterned. Upper body is grayish-brown, whitish and streaked below, it has a dark eye line, has cinnamon wing linings, legs are dark-gray, and the bill is blackish and slightly decurved. Sexes are similar in appearance, but females are larger. Their Eskimo curlew's diet consists almost entirely of berries during boreal autumn before migration, and insects (mostly grasshopper) during spring. The species would gorge at these two periods preceding their nonstop partly transoceanic flights between Arctic breeding grounds and nonbreeding grounds in South America. There is no specific information on breeding, nesting, and brooding behaviors, other than that based on similar taxa. Other Numeniini are very long-lived, up to 30 years.

Status and Distribution of Species

Listed as Endangered under the ESA. This species nests in the Arctic tundra and winters in South America. The Eskimo curlew is sometimes sighted near the Texas coast during migratory interludes. Migration pathways include the Platte River flyway. The Eskimo Curlew does not occur in the RMPPA.

Habitat Associations and Life History Requirements

The Eskimo curlew has specific habitat needs that cause them to migrate great distances to complete their life cycle. They nest in treeless tundra in Alaska and the Northwest Territories, Canada. After nesting, in August and early September they assemble in flocks along the coast of Labrador, where they feed voraciously before commencing their nonstop migration across the western Atlantic Ocean to Argentina, South America, 15,000 miles from their breeding grounds. The return northward migration in February follows a completely different route, traversing over the western South American continent, across the Gulf of Mexico, into the Central Flyway of the Great Plains states, where they stop over to feed and ultimately arrive back to their tundra breeding grounds.

Threats from Human Activity

Any activity that disturbs migratory habitats (including wet meadows along the central Platte River in Nebraska) is detrimental to the persistence of this species.

Environmental Consequences and Viability

The Eskimo curlew appears near the brink of extinction. Any activity that disturbs migratory habitats (including wet meadows along the central Platte River in Nebraska) is detrimental to the persistence of this species.

Management Status and Recovery and Conservation Planning

Information on this species is incomplete. Eskimo curlews are extremely rare, and breeding grounds occur in areas well beyond normal human encroachment (NYDEC 2003). This rarity has inhibited recovery and conservation planning efforts.

Determination

Given the precarious state of this species and the great cumulative effects of depletions on other lands, the Service has great concern about the effect of any water depletion, however small, on its habitat along the Platte River in Nebraska. Implementation of the RFO RMP is likely to adversely affect the Eskimo curlew. The Bureau will continue participation in the Platte River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Platte River Agreement.

2. For projects that cause depletions to the Platte River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Platte River species.

Best Management Practices

1. When developing or improving water source in the Platte River system, the Bureau would consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Piping Plover (*Charadrius melodus*)

Listing Status: Federal—Threatened

Species Description

The piping plover is a small, stocky, sandy-colored bird resembling a sandpiper. The adult has yellow-orange legs, a black band across the forehead from eye to eye, and a black ring around the base of its neck. Like other plovers, it runs in short starts and stops. When still, the piping plover blends into the pale background of open, sandy habitat on outer beaches, where it feeds and nests. The bird's name derives from its call notes, plaintive bell-like whistles which are often heard before the birds are seen.

Status and Distribution of Species

Listed Threatened (50 FR 50726–50734, 1985, December 11) in its entire range, except in the Great Lakes watershed, where it is listed Endangered. This species breeds in south-central Alberta and Manitoba to eastern Montana and central and eastern Nebraska. In addition the birds breed in the Great Lakes region, from northern Michigan and southern Ontario to the shores of Lake Michigan and Lake Ontario. Piping plovers winter in eastern Texas and in other coastal locations along the Atlantic seaboard, from South Carolina to Florida. The Piping plover does not occur in the RMPPA.

Habitat Associations and Life History Requirements

Piping plovers prefer exposed, sparsely vegetated, sandy shores and islands within shallow lakes and ponds. In addition they can be found in expansive, open, sandy areas that have tufts of grass. Winter habitats are beaches, lagoon margins, and areas of rubble substrate.

Threats from Human Activity

Flood abatement activities, such as water diversions that permit shoreline vegetation to flourish, and human activity in general threaten piping plover habitats and populations. Alterations of water flow change the structure of sandbars preferred for nesting (though the birds nest on sandy shores as well), and irregular flows may flood nests or leave the sandbar connected to the shore and more vulnerable to predation.

Environmental Consequences and Viability

Steadily declining numbers of piping plovers and habitat loss appear to suggest that the persistence of this species is problematic.

Management Status and Recovery and Conservation Planning

Recovery Plan completed May 2, 1996.

Determination

Given the great cumulative effects of depletions on other lands, the Service has great concern about the effect of any water depletion, however small, on water flows in the species' nesting habitat along the Platte River. Implementation of the RFO RMP is likely to adversely affect the piping plover. The Bureau will continue participation in the Platte River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Platte River Agreement.

2. For projects that cause depletions to the Platte River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Platte River species.

Best Management Practices

1. When developing or improving water source in the Platte River system, the Bureau will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Piping Plover Critical Habitat

Listing Status: Critical Habitat, identified September 2002

Critical Habitat Description

On the Platte River, Critical habitat has been designated from the Lexington Bridge, NE, downstream to the confluence of the Platte and Missouri rivers. Habitat included in the designation in Nebraska is composed of sparsely vegetated channel sandbars, sand and gravel beaches on islands within the high bank for nesting, temporary pools on sandbars and islands, and the interface of sand and river where plovers forage.

Determination

Given the great cumulative effects of depletions on other lands, the Service has great concern about the effect of any water depletion, however small, on water flows in the species' nesting habitat along the Platte River. Implementation of the RFO RMP is likely to adversely affect the designated Critical habitat for the piping plover. The Bureau will continue participation in the Platte River Program.

Habitat Conservation Measures

1. The Bureau will continue participation in the Platte River Agreement.

2. For projects that cause depletions to the Platte River system Critical habitat, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Platte River species Critical Habitat.

Best Management Practices

1. When developing or improving water source in the Platte River system, the Bureau will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Interior Least Tern (*Sterna antillarum*)

Listing Status: Federal—Endangered

Species Description

Least terns (all currently recognized subspecies and populations) are the smallest members of the subfamily Sterninae and family Laridae of the order Charadriiformes, measuring about 0.7–0.8 inches (21–24 cm) long, with a wingspread of 1.7 feet (51 cm). Sexes are alike, characterized by a black-capped crown, white forehead, grayish back and dorsal wing surfaces, snowy white undersurfaces, legs of various orange and yellow colors depending on the sex, and a black-tipped bill whose color also varies depending on sex. Immature birds have darker plumage than adults, a dark bill, and dark eye stripes on their white foreheads (Watson 1966, Davis 1968, Boyd and Thompson 1985).

The interior least tern is piscivorous, feeding in shallow waters of rivers, streams, and lakes. Other least terns also feed on crustaceans, insects, mollusks and annelids (Whitman 1988). The terns usually feed close to their nesting sites. Fish prey is small–sized, and important genera include Fundulus, Nortopis, Campostoma, Pimephales, Gambusia, Blonesox, Monrone, Dorosoma, Lepomis and Carpiodes (Grover 1979, Hardy 1957, Rumancik 1988, 1989; Schulenberg et al. 1980, Smith and Renken 1990, Wilson et al. 1989). Fishing occurs close to the riverine colony. Terns nesting at sand and gravel pits and other artificial habitats may fly up to 2 miles (3.2 km) to fish.

Status and Distribution of Species

Listed Endangered (50 FR 21784–21792, 1985, May 28) in the United States, except within 50 miles of the coast. The species prefers sandbars of rivers, inland islands, expansive sand and gravel beaches, and salt plains in Oklahoma. For nesting, the species prefers river sandbars. The least tern (interior variety) breeds near the following river basins: Colorado River; Red River; Platte River, MO; and the Mississippi River; from southern South Dakota, western Iowa, northwestern Indiana, to central Oklahoma, Louisiana, New Mexico, and Texas. These birds winter along the Pacific Ocean near Baja, CA, and along the Gulf Coast to South America. The interior least tern does not occur in the RMPPA.

Habitat Associations and Life History Requirements

Least terns throughout North America nest in areas with similar habitat attributes. The riverine nesting areas of interior least terns are sparsely vegetated sand and gravel bars within a wide unobstructed river channel, or salt flats along lake shorelines. Nesting locations usually are at the higher elevations and away from the water's edge because nesting starts when the river flows are high and small amounts of sand are exposed. The size of nesting areas depends on water levels and the extent of associated sandbars. No Critical habitat has been identified for this species.

Threats from Human Activity

Loss of gravel and sandbars along rivers due to flow regulation threatens least tern populations. In addition, human disturbance in nesting areas negatively affects nesting success.

Environmental Consequences and Viability

Population declines and habitat loss suggest that the persistence of the interior least tern is problematic.

Management Status and Recovery and Conservation Planning

Recovery Plan completed September 19, 1990.

Determination

Given the endangered status of this species and the great cumulative effects of depletions on other lands, the Service has great concern about the effect of any water depletion, however small, on water flow and nesting habitat in the Platte River in Nebraska. Implementation of the RFO RMP is likely to adversely affect the interior least tern. The Bureau will continue participation in the Platte River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Platte River Agreement.

2. For projects that cause depletions to the Platte River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Platte River species.

Best Management Practices

1. When developing or improving water source in the Platte River system, the Bureau will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Pallid Sturgeon (*Scaphirhynchus albus*)

Listing Status: Federal—Endangered

Species Description

The pallid sturgeon is one of the largest (30–60 inches, [76–152 cm]) fishes found in the Missouri-Mississippi River drainage, with specimens weighing up to 85 pounds (39 kg). It is usually light brown on the dorsal surface and white underneath. It has a flattened, shovel-shaped snout. Fleshy chin barbels are located at about 1/3 distance between the mouth and snout, with the inner barbels about 1/2 the length of the outer barbels. The pallid has a long, slender, flattened and armored region from the dorsal fin to the tail fin (caudal peduncle), which has a long upper lobe. There are no bony plates on the belly.

Status and Distribution of Species

Listed Endangered (55 FR 36641, 1990, September 6) in the United States. Pallid sturgeon are found almost exclusively in the headwaters of the Missouri River (in the vicinity of Fort Benton/Great Falls, MT) downstream to the Mississippi River near New Orleans, LA. In addition the pallid sturgeon is found in the Platte River near its confluence with the Missouri River.

Habitat Associations and Life History Requirements

The pallid sturgeon is native to the Missouri and Mississippi Rivers and therefore adapted to the predevelopment habitat conditions that existed in these large rivers. These conditions generally can be described as large, free-flowing, warm water turbid habitat, with a diverse assemblage of physical habitats that were in a constant state. The Service has not designated Critical habitats for the pallid sturgeon.

Threats from Human Activity

Modification of the pallid sturgeon's habitat by human activities has blocked fish movement, destroyed or altered spawning areas, reduced food sources or the ability to obtain food, altered water temperatures, reduced turbidity, and changed the hydrograph of the river system. Overfishing, pollution, and hybridization that occur due to habitat alterations also have probably contributed to the species' population decline.

Environmental Consequences and Viability

The Service has determined that any water depletions in the Platte River Basin are likely to adversely affect the pallid sturgeon. Water allocations in the North Platte River Basin in Wyoming are a complex mix of private and public water rights and beneficial uses. Myriad water rights and designated beneficial uses, working in concert with other confounding factors such as groundwater conditions, evaporation rates, transmission losses, and water quality conditions, make it difficult to predict the likely effects to pallid sturgeon populations downstream in the Platte River.

Management Status and Recovery and Conservation Planning

Recovery Plan completed November 7, 1993.

Determination

Given the endangered status of this species and the great cumulative effects of depletions on other lands, the Service has great concern about the effect of any water depletion, however small, on water flow and nesting habitat in the Platte River in Nebraska. Implementation of the RFO RMP is likely to adversely affect the pallid sturgeon. The Bureau will continue participation in the Platte River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Platte River Agreement.

2. For projects that cause depletions to the Platte River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Platte River species.

Best Management Practices

1. When developing or improving water source in the Platte River system, the Bureau will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Western Prairie Fringed Orchid (*Platanthera praeclara*)

Listing Status: Federal—Threatened

Species Description

The Western prairie fringed orchid (WPFO) is a perennial forb with large and showy inflorescences. Plants are usually about 12 to 34 inches (30–85 cm) tall and have 2 to 5 relatively thick, elongate, glabrous leaves (Sheviak and Bowles 1986). The WPFO reproduces primarily by seed, with flowering occurring between late June and mid-July and seed dispersal (wind and water) in mid-September. Flowering patterns are often erratic, and certain information suggests that the plant commonly undergoes periods of dormancy (Bowles 1983). The species is self-compatible, but pollination is required for fruit and seed production. Two species of hawkmoths have been identified as pollen vectors for the orchid (Cuthrell and Rider 1993).

Status and Distribution of Species

Historically, the WPFO was found in tallgrass prairies west of the Mississippi river, from southern Canada to Oklahoma. The current distribution of this species includes Minnesota; Iowa; Missouri; Nebraska; North Dakota; and Manitoba, Canada. It is believed to be extirpated from South Dakota and Oklahoma. The WPFO is associated with wetlands. Orchid populations shift in time and space in response to water levels (Hoff et al. 1999). There are 172 population sites remaining in 6 states, and 1 population complex in Manitoba, Canada (NatureServe 2003, NatureServe 2002, and USDI FWS 2002). The largest populations occur in Manitoba and on the Sheyenne National Grassland in North Dakota. The Sheyenne National Grassland is not tributary to the Platte River (USDA FS, Sheyenne Ranger District 1999). There are an unknown number of populations located on Platte River in the targeted recovery area (USFWS pers. comm.). The species is listed as Threatened by the Service and has a TNC/NHP status of G2 (USFWS 1996). The WPFO does not occur within the RMPPA.

Habitat Associations and Life History Requirements

The WPFO is associated with sedge meadows, primarily within the tallgrass prairie biome (Nebraska and the Great Plains). Across its range, this species is generally found in fire- and grazing-adapted grassland communities, most often on unplowed calcareous prairies and sedge meadows. It has also been documented in successional plant communities on disturbed sites. Maintenance of functional dynamic tallgrass prairie is key to survival of species.

Threats from Human Activity

The major factor contributing to the decline of this species is the conversion of native prairie to croplands.

Environmental Consequences and Viability

Since 1989, when the WPFO was listed as Threatened, the Service has consistently taken the position in its Section 7 consultations that federal agency actions resulting in water depletions to the Platte River system may affect the threatened WPFO. Although the WPFO is included by the Service as a threatened species that occurs in habitat downstream on the Platte River, it is not a target species for the Platte River Endangered Species Partnership. In addition, Critical habitat has not been designated for this species.

Properly functioning downstream riparian systems provide conditions favorable for establishment and maintenance of riparian-dependent species such as WPFO. Any activities that lower water tables below

the root zone of the orchids have the potential of seriously reducing orchid populations (USFWS 1996). Changes in timing and flow conditions in streams that flow from the RMPPA to the Platte River can result from several types of management activities: exercise of valid water rights that allow for diverting water from streams (including transbasin diversions); associated land use authorizations, including reservoirs, ditches, and pipelines; administrative water uses, including water rights for recreation sites and administrative facilities; and water yield changes from vegetation management. There would be no significant measurable local or regional change in water yield within the Platte River Basin from implementation of the RFO RMP. Any reauthorization of existing special uses that involve water depletions, or authorization of new uses that involve water depletions, would be subject to Service review.

Management Status and Recovery and Conservation Planning

Recovery Plan approved in 1996 (USFWS 1996). The recovery plan emphasizes the need for actions that prevent further declines in orchid populations and habitat quality. This plan includes protection goals for existing habitat and delisting criteria. The recovery plan direction focuses on protection status of existing habitat. Critical habitat has not been designated for the WPFO.

Determination

Because existing populations of WPFO are several hundred miles away from the RMPPA, and because known pollinators (sphinx or hawkmoths) are not known to travel across such distances for foraging or feeding, there will be no indirect effects from Bureau management-induced pollinator changes on downstream populations of WPFO.

Based on the water yield and depletion discussion, and on Service opinions on the Platte River, implementation of the RFO RMP is likely to adversely affect WPFO. The Bureau will continue participation in the Platte River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Platte River Agreement.

2. For projects that cause depletions to the Platte River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Platte River species.

Best Management Practices

1. When developing or improving water source in the Platte River system, the Bureau will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Colorado River Basin Species and Designated Critical Habitat

Four endangered fish found in the Colorado River in Colorado may be affected by Bureau-authorized actions within the RMPPA (see Table 6).

Table 6. Federally Listed Fishes Under the Endangered Species Act of 1973 That Are Native to the Colorado River Basin and May Be Affected By Water Depletions Resulting From Bureau-authorized Actions Within the RMPPA

Common Name	Scientific Name	ESA Status	Designated Critical Habitat
Colorado Pikeminnow	*Ptychocheilus lucius*	Endangered	Yes
Razorback Sucker	*Xyruachen texanus*	Endangered	Yes
Bonytail	*Gila elegans*	Endangered	Yes
Humpback Chub	*Gila cypha*	Endangered	Yes

Colorado pikeminnow (*Ptychocheilus lucius*)

Listing Status: Federal—Endangered

Species Description

The Colorado pikeminnow (formerly Colorado squawfish) is a torpedo-shaped fish with an olive-green and gold back, silver sides, and white belly. These fish spawn between late June and early September, when they are 5–6 years old and at least 16 inches (41 cm) long. Similar to salmon, Colorado pikeminnow can migrate more than 200 miles to spawn. The largest minnow in North America and one of the largest in the world, the Colorado pikeminnow at one time may have lived 50 or more years, growing to nearly 6 feet (1.8 m) long and weighing up to 80 pounds (36 kg).

Status and Distribution of Species

Listed as Endangered (32 FR 4001, March 11, 1967) except in Salt and Verde river drainages, AZ. In addition, the Colorado pikeminnow is listed as Threatened by the State of Colorado and is legally protected by the State of Utah. The Colorado pikeminnow was historically abundant in the Colorado River and most of its major tributaries, such as the Yampa River and Green River. Though a single individual was collected in 1990 from the Little Snake River within the RMPPA, Colorado pikeminnow are currently thought to be extirpated from Wyoming.

Habitat Associations and Life History Requirements

The Colorado pikeminnow prefers eddies and pools in large, deep rivers such as the Colorado River and Green River.

Threats from Human Activity

Colorado pikeminnow populations have been dramatically reduced throughout their historic range as a result of past and present human activities. Pervasive threats to this species are due to habitat alterations resulting from water development and diversions. However, non-native fish introductions are the most pressing impediment to the recovery of this species: predatory, non-native fishes profoundly affect recruitment by consuming juveniles (Minckley et al. 2003). Recovery efforts, however, are expanding the abundance and distribution of this species where the effects of habitat fragmentation and habitat alteration can be directly addressed.

Environmental Consequences and Viability

The cumulative effects on the Colorado pikeminnow due to activities that occur on public and private lands in the upper Colorado River Basin (Wyoming only) are real and may be measurable. The

cumulative effects to this species primarily are the result of water developments and water uses in the basin. Also, introduced species, such as rainbow trout, are an important component of the cumulative effects that impact the Colorado pikeminnow; exotic trout tend to prey on young age classes of the pikeminnow.

Management Status and Recovery and Conservation Planning

Recovery plan completed August 28, 2002.

Determination

Because of the potential for further water depletions from the Colorado River Basin, implementation of the RFO RMP is likely to adversely affect the Colorado pikeminnow. If specific projects that incorporate water depletions are proposed during the planning period, the Bureau will continue to consult with the Service. The Bureau will continue participation in the Colorado River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Colorado River Recovery Program.

2. For projects that cause depletions to the Colorado River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado River species.

Best Management Practices

1. When developing or improving water source in the Colorado system, the Bureau will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Colorado pikeminnow (*Ptychocheilus lucius*) Critical Habitat

Critical Habitat Description

The Service has designated Critical habitat for the Colorado pikeminnow as follows: the Yampa River (Moffat Co., CO) and its 100-year floodplain, from State Highway 394 bridge, T. 6 N., R. 91 W., sec. 1, to its confluence with the Green River, T. 7 N., R. 103 W., sec. 28, sixth principal meridian; Green River and its 100-year floodplain, from its confluence with the Yampa River (Uintah, Carbon, Grand, Emery, Wayne, San Juan counties UT; and Moffat County, CO.) to the confluence with the Colorado River, T. 30 S., R. 19 E., sec. 7, Salt Lake meridian; White River (Rio Blanco Co., CO) and its 100-year floodplain, from Rio Blanco Lake Dam, T. 1 N., R. 96 W., sec. 6, sixth principal meridian, to the confluence with the Green River (Uintah Co., UT) in T. 9, R. 20 E., sec. 4, Salt Lake meridian; Gunnison River (Delta and Mesa counties, CO) and its 100-year floodplain, from its confluence with the Uncomphagre River in T. 15 S., R. 96 W., sec. 11, sixth principal meridian, to the confluence with the Colorado River in T. 1 S., R. 1 W., sec. 22, Ute meridian; Colorado River (Mesa and Garfield counties, CO; and Grand, San Juan, Wayne, Garfield counties, UT) and its 100-year floodplain, from the Colorado River bridge at Exit 90, north off Interstate 70 (river mile 238) in T. 6 N., R. 93 W., sec. 16, sixth principal meridian, to North Wash, including the Dirty Devil arm of Lake Powell, up to the full-pool elevation in T. 33 S., R. 14 E., sec. 29, Salt Lake meridian; and the San Juan River (San Juan Co., NM, and San Juan Co., UT) and its 100-year floodplain, from the State Route 371 bridge in T. 29 N., R. 13 W., sec. 17, New Mexico meridian, to Neskahai Canyon in the San Juan arm of Lake Powell in T. 41 S., R. 11 E., sec. 26, up to the full-pool elevation.

Determination

Because of the potential for further water depletions from the Colorado River Basin, implementation of the RFO RMP is likely to adversely affect the designated Critical habitat of the Colorado pikeminnow. If specific projects that incorporate water depletions are proposed during the planning period, the Bureau will continue to consult with the Service. The Bureau will continue participation in the Colorado River Program.

Habitat Conservation Measures

1. The Bureau will continue participation in the Colorado River Recovery Program.

2. For projects that cause depletions to the Colorado River system Critical habitat, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado River species Critical habitat.

Best Management Practices

When developing or improving water source in the Colorado River system, the Bureau would consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Razorback sucker (*Xyrauchen texanus*)

Listing Status: Federal—Endangered

Species Description

One of the largest suckers in North America, the razorback sucker can grow to up to 13 pounds (5.9 kg) and lengths exceeding 3 feet (0.9 cm). The razorback is brownish-green, with a yellow to white-colored belly; and has an abrupt bony hump on its back shaped like an upside-down boat keel.

Status and Distribution of Species

The razorback sucker was historically well-distributed in the Colorado River and in many of its major tributaries. Presently the razorback sucker is listed as Endangered under the ESA. In addition, the razorback sucker is listed as Endangered in the state of Colorado and is legally protected by the State of Utah. The razorback sucker does not occur within the RMPPA.

Habitat Associations and Life History Requirements

The Razorback sucker prefers fast, turbid waters in large rivers, such as the Colorado River and Green River.

Threats from Human Activity

Abundance and distribution of the razorback sucker has been dramatically reduced because of water developments such as dams and water diversions. In addition, the introduction of non-native trout into the historical habitats of the razorback sucker has almost eliminated their recruitment and survival (Minckley et al. 2003). Incidental catch by recreational anglers may pose a threat as a result of stress caused by direct and delayed mortality.

Environmental Consequences and Viability

Water development projects and activities, such as dam construction/operation and water diversions, have materially altered the preferred habitat conditions of the razorback sucker. Dams have altered the timing, magnitude, and duration of flows that characterize the variation in annual runoff in unaltered, large rivers. Altered flows due to dam operation can also affect the abundance and distribution of spawning and rearing habitats preferred by the razorback sucker. Both historical water depletions and any new water depletions are likely to negatively affect population and habitat conditions downstream, though assessing the effects on species viability may be difficult.

The cumulative effects on the razorback sucker due to activities that occur on public and private lands in the upper Colorado River Basin (Wyoming only) are real and may be measurable. Cumulative effects that may negatively impact this species primarily are the result of water developments and water uses in the basin.

Management Status and Recovery and Conservation Planning

Recovery Plan completed December 23, 1998.

Determination

Because of the potential for further water depletions from the Colorado River Basin, implementation of the RFO RMP is likely to adversely affect the razorback sucker. If specific projects that incorporate water depletions are proposed during the planning period, the Bureau will continue to consult with the Service. The Bureau will continue participation in the Colorado River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Colorado River Recovery Program.

2. For projects that cause depletions to the Colorado River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado River species.

Best Management Practices

When developing or improving water source in the Colorado system, the Bureau will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Razorback sucker (*Xyrauchen texanus*) Critical Habitat

Critical Habitat Description

The Service has designated the following Critical habitats for the Razorback sucker: Yampa River (Moffat Co., CO) and its 100-year floodplain, from the mouth of Cross Mountain Canyon in T. 6 N., R. 98 W., sec. 23, sixth principal meridian, to its confluence with the Green River in T. 7 N., R. 103 W., sec. 28, sixth principal meridian; Green River (Uintah Co., UT, and Moffat Co., CO) and its 100-year floodplain and its confluence with the Yampa River in T. 7 N., R. 103 W., sec. 28, sixth principal meridian, to Sand Wash at river mile 96 in T. 11 S., R. 18 E., sec. 20, sixth principal meridian); Green River and its 100-year floodplain, from Sand Wash at river mile 96 in T. 11 S., R. 18 E., sec. 20, sixth principal meridian, to the confluence of the Colorado River in T. 30 S., R. 19 E., sec. 7, sixth principal

meridian); White River (Uintah Co., UT) and its 100-year floodplain, from the boundary of the Uintah and Ouray Indian Reservations at river mile 18 in T. 9 S., R. 22 E., sec. 21, Salt Lake meridian, to its confluence with the Green River in T. 9 S., R. 20 E., sec. 4, Salt Lake meridian; Duchesne River (Uintah Co., UT) and its 100-year floodplain, from river mile 2.5 in T. 4 S., R. 3 E., sec. 30, Salt Lake meridian, to its confluence with the Green River in T. 5 S., R. 3 E., sec. 5, Uintah meridian; Gunnison River (Delta and Mesa counties, CO) and its 100-year floodplain, from its confluence with the Uncompahgre River in T. 15 N., R. 96 W., sec. 11, sixth principal meridian, to Redlands Diversion Dam in T. 1 S., R. 1 W., sec. 27, Ute meridian; Colorado River (Mesa and Garfield counties, CO) and its 100-year floodplain, from Colorado River bridge at Exit 90, north of Interstate 70, in T. 6 S., R. 93 W., sec. 16, sixth principal meridian, to Westwater Canyon in T. 20 S., R. 25 E., sec. 12, Salt Lake meridian, including the Gunnison River and its 100-year floodplain, from the Redlands Diversion Dam in T. 1 S., R. 1 W., sec. 27, Ute meridian, to its confluence with the Colorado River in T. 1 S., R. 1 W., sec. 22, Ute meridian; Colorado River (Grand, San Juan, Wayne, and Garfield counties, UT) and its 100-year floodplain, from Westwater Canyon in T. 20 S., R. 25 E., sec. 12, Salt Lake meridian, to full-pool elevation upstream of North Wash, including the Dirty Devil arm of Lake Powell in T. 33 S., R. 14 E., sec. 29, Salt Lake meridian; and the San Juan River (San Juan Co., NM, and San Juan Co., UT) and its 100-year floodplain, from the Hogback Diversion in T. 29 N., R. 16 W., sec. 9, New Mexico meridian, to the full-pool elevation at the mouth of Neskahai Canyon on the San Juan arm of Lake Powell in T. 41 S., R. 11 E., sec. 26, Salt Lake meridian.

Determination

Because of the potential for further water depletions from the Colorado River Basin, implementation of the RFO RMP is likely to adversely affect the designated Critical habitats of the razorback sucker. If specific projects that incorporate water depletions are proposed during the planning period, the Bureau will continue to consult with the Service. The Bureau will continue participation in the Colorado River Program.

Habitat Conservation Measures

1. The Bureau will continue participation in the Colorado River Recovery Program.

2. For projects that cause depletions to the Colorado River system Critical habitat, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado River species Critical habitat.

Best Management Practices

1. When developing or improving water source in the Colorado River system, the Bureau would consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Bonytail chub (Gila elegans)

Listing Status: Federal—Endangered

Species Description

The body of an adult bonytail chub is highly streamlined, a greenish-gray, with a dusky color on its back, silvery sides, and a white belly. The bonytail chub may reach up to 24 inches (0.6 m) in length and weigh over 2 pounds (0.9 kg). Young fish in riverine habitats eat primarily chironomid larvae and mayfly nymphs. Small fish become more dependant on floating food as they grow, and juvenile chub eat a more

diversified diet, including terrestrial and aquatic insects. Adult bonytail chub feed on terrestrial insects (Vanicek and Kramer 1969), gastropods, and caddis worms (Kirsch 1888). The diet of bonytail chub in reservoirs appears to be primarily plankton and algae (Minckley 1973), and the bonytail may also eat rainbow trout fry less than 2.5 inches (6.4 cm) (Wagner 1955).

Status and Distribution of Species

The bonytail is listed as Endangered under the ESA. In addition, the bonytail is listed as Endangered in the State of Colorado, and it is legally protected by the State of Utah. Historically the bonytail was abundant in the Colorado River and in its major tributaries, such as the Green River and the Yampa River. At present the bonytail is precariously extant in the Colorado River downstream of Lake Powell, and the bonytail is nearly extinct upstream of Lake Powell. The Bonytail does not occur in the RMPPA.

Habitat Associations and Life History Requirements

The bonytail prefers fast-flowing, turbid waters in large, deep rivers in the upper Colorado River Basin, such as the Green River and Colorado River.

Threats from Human Activity

The bonytail is the most imperiled fish among the federally listed fish species native to the Colorado River drainage. Water development projects and activities, such as dams and water diversions, have caused a nearly catastrophic decline in bonytail populations and preferred habitats. Further, the introductions of non-native trout in the Colorado River drainage have contributed to the decline in bonytail abundance and distribution as a result of predation.

Environmental Consequences and Viability

The cumulative effects on the bonytail due to activities that occur on public and private lands in the upper Colorado River Basin (Wyoming only) are real, and they may be measurable. Cumulative effects that may negatively impact this species primarily are the result of water developments and water uses in the basin. Introduced species, such as rainbow trout, are also a component of the cumulative effects; exotic trout tend to prey on young age classes of bonytail.

Management Status and Recovery and Conservation Planning

Recovery Plan completed September 4, 1990.

Determination

Because of the potential for further water depletions from the Colorado River Basin, implementation of the RFO RMP is likely to adversely affect the bonytail. If specific projects that incorporate water depletions are proposed during the planning period, the Bureau will continue to consult with the Service. The Bureau will continue participation in the Colorado River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Colorado River Recovery Program.

2. For projects that cause depletions to the Colorado River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado River species.

Best Management Practices

1. When developing or improving water source in the Colorado system, the Bureau will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Bonytail (*Gila elegans*) Critical Habitat

Critical Habitat Description

The Service has designated the following Critical habitats for the bonytail: Yampa River (Moffat Co., CO), from the boundary of the Dinosaur National Monument in T. 6 N., R. 99 W., sec. 27, sixth principal meridian, to its confluence with the Green River in T. 7 N., R. 103 W., sec. 28, sixth principal meridian; Green River (Uintah Co., UT, and Moffat Co., CO), from its confluence with the Yampa River in T. 7 N., R. 103 W., sec. 28, sixth principal meridian, to the boundary of Dinosaur National Monument in T. 6 N., R. 24 E., sec. 30, Salt Lake meridian; Green River (Uintah and Grand counties, UT) (Desolation and Gray Canyons), from Sumner's Amphitheater in T. 12 S., R. 18 E., sec. 5, Salt Lake meridian, to Swasey's Rapid (river mile 12) in T. 20 S., R. 16 E., sec. 3, Salt Lake meridian; Colorado River (Grand Co., UT, and Mesa Co., CO) in T. 10 S., R. 104 W., sec. 25, sixth principal meridian, to Fish Ford in T. 21 S., R. 24 E., sec. 35, Salt Lake meridian; and Colorado River (Garfield and San Juan counties, UT), from Brown Betty Rapid in T. 30 S., R. 18 E., sec. 34, Salt Lake meridian, to Imperial Canyon in T. 31 S., R. 17 E., sec. 28, Salt Lake meridian.

Determination

Because of the potential for further water depletions from the Colorado River Basin, implementation of the RFO RMP is likely to adversely affect the designated Critical habitats of the bonytail. If specific projects that incorporate water depletions are proposed during the planning period, the Bureau will continue to consult with the Service. The Bureau will continue participation in the Colorado River Program.

Habitat Conservation Measures

1. The Bureau will continue participation in the Colorado River Recovery Program.

2. For projects that cause depletions to the Colorado River system Critical habitat, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado River species Critical habitat.

Best Management Practices

1. When developing or improving water source in the Colorado River system, the Bureau would consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Humpback chub (*Gila cypha*)

Listing Status: Federal—Endangered

Species Description

The humpback chub is a member of the Cyprinidae family and is distinguishable from other chubs by a pronounced hump that arises above the gills and extends to the origin of the dorsal fin. It has a flattened, concave head; small eyes; subterminal, beak-like mouth; a long snout that protrudes over the lower jaw; and large fins. The humpback chub is gray or olive-colored on its back, with silver sides and a white belly. During the spawning season, adults will develop rosy-red fins and gill coverings. Some areas of the Colorado River are turbulent. Consequently it is believed that the hump causes the humpback chub to be pushed to the bottom where water velocities are lower and where the chub can hold its position without exerting excess energy. Grooves associated with the hump may aid in directing water to the fish's gills (Minckley 1973). The long snout and beak-like mouth may allow the fish to feed without the mouth becoming filled with rushing water. The Humpback chub's diet includes aquatic and terrestrial arthropods, small fishes, diatoms, planktonic crustaceans and algae.

Status and Distribution of Species

The humpback chub is listed as Endangered under ESA. In addition the humpback chub is listed as Endangered by the State of Colorado, and it is legally protected by the State of Utah. Historically the humpback chub was abundant in the canyons of the Colorado River and in the canyons of four tributaries: the Green River, the Yampa River, the White River, and the Little Colorado River. Presently two stable populations of humpback chubs are known to exist, both near the Colorado-Utah border: Westwater Canyon (Utah) and Black Rocks (Colorado). The largest known population of humpback chubs exists in the Little Colorado River in the Grand Canyon. Smaller populations of humpback chubs can be found in the main stem of the Colorado River (Arizona) and in sections of its tributaries, such as the Green River (Utah and Colorado) and the Yampa River near Dinosaur National Monument. The humpback chub does not occur in the RMPPA.

Habitat Associations and Life History Requirements

The humpback chub prefers fast waters in habitats, such as the riffles and rapids of river canyons and their tributaries (canyon sections) in the Colorado River Basin.

Threats from Human Activity

Water developments and introduced fishes are the primary threats to the viability of humpback chub populations. Providing adequate spring runoff conditions, establishing additional populations, and reducing the stocking of non-native trout are all conducive to maintaining viable populations of humpback chub. Both historical water depletions and any new water depletions are likely to negatively affect population and habitat conditions downstream, though assessing the effects on species viability may be difficult.

Environmental Consequences and Viability

The humpback chub is not as abundant as it was historically. Water development and introduced trout have affected the abundance and distribution of the humpback chub. Dams have altered the timing, duration, and magnitude of annual flows that provided suitable and preferable habitats for the humpback chub. Further, non-native trout have affected humpback chub abundance as a result of predation.

The cumulative effects on the humpback chub due to activities that occur on public and private lands in the upper Colorado River Basin (Wyoming only) are real, and they may be measurable. Cumulative effects that may negatively impact this species are primarily the result of water developments and water uses in the basin. Introduced species, such as rainbow trout, also are an important component of the cumulative effects; exotic trout tend to prey on young age classes of humpback chubs.

Management Status and Recovery and Conservation Planning

Recovery Plan completed August 19, 1990.

Determination

Because of the potential for further water depletions from the Colorado River Basin, implementation of the RFO RMP is likely to adversely affect the humpback chub. If specific projects that incorporate water depletions are proposed during the planning period, the Bureau will continue to consult with the Service. The Bureau will continue participation in the Colorado River Program.

Species Conservation Measures

1. The Bureau will continue participation in the Colorado River Recovery Program.

2. For projects that cause depletions to the Colorado River system, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado River species.

Best Management Practices

1. When developing or improving water source in the Colorado system, the Bureau will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Humpback chub (*Gila cypha*) Critical Habitat

Critical Habitat Description

The Service has designated the following Critical habitats for the humpback chub: Yampa River (Moffat Co., CO), from the boundary of Dinosaur National Monument in T. 6 N., R. 103 W., sec. 27, sixth principal meridian, to its confluence with the Green River in T. 7 N., R. 103 W., sec. 28, sixth principal meridian); Green River (Uintah Co., Utah, and Moffat Co., CO), from its confluence with the Yampa River in T. 7 N., R. 103 W., sec. 28, sixth principal meridian, to the southern boundary of Dinosaur National Monument in T. 6 N., R. 24 E., sec. 30, Salt Lake meridian; Green River (Uintah and Grand Co., UT) (Desolation and Gray Canyons), from Summers Amphitheater in T. 12 S., R. 18 E., sec. 5, Salt Lake meridian, to Swasey's Rapid in T. 20 S., R. 18 E., sec. 3, Salt Lake meridian; Colorado River (Grand Co., UT, and Mesa Co., CO), from Black Rocks in T. 10 S., R. 104 W., sec. 25, sixth principal meridian, to Fish Ford in T. 21 S., R. 24 E., sec. 35, Salt Lake meridian; and Colorado River (Garfield and San Juan counties, UT), from the Brown Betty Rapid in T. 30 S., 18 E., sec. 34, Salt Lake meridian, to Imperial Canyon in T. 30 S., R. 17 E., sec. 28, Salt Lake meridian.

Determination

Because of the potential for further water depletions to the Colorado River Basin, implementation of the RFO RMP is likely to adversely affect the designated Critical habitats of the humpback chub. If specific

projects that incorporate water depletions are proposed during the planning period, the Bureau will continue to consult with the Service. The Bureau will continue participation in the Colorado River Program.

Habitat Conservation Measures

1. The Bureau will continue participation in the Colorado River Recovery Program.

2. For projects that cause depletions to the Colorado River system Critical habitat, the Bureau will initiate formal consultation with the Service. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado River species Critical habitat.

Best Management Practices

1. When developing or improving water source in the Colorado River system, the Bureau would consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

Blowout Penstemon (*Penstemon haydenii*)

Listing Status: Federal—Endangered, September 1, 1987

Species Description

The blowout penstemon is a milky-blue, aromatic, perennial herb with one to many glabrous stems arising from a branched caudex or buried stem nodes. Stems are generally less than 12 inches (30 cm) tall, with greenish-blue, waxy, linear to lanceolate, entire leaves 1 to 5 inches (2.5 to 12 cm) long and 0.1 to 0.4 inches (0.3 to 1 cm) wide.

The inflorescence is 2.4 to 6.3 inches (6–16 cm) long, with 6 to 10 compact, leafy whorls of milky-blue to pale lavender flowers. Floral bracts are broad and heart-shaped at the base and narrow to an elongate tip. Individual flowers are 9 to 9.8 inches (23–25 cm) long, with tubular, bilobed, and faintly vanilla-scented corollas and glabrous, linear sepals. Anther sacs are 0.07 to 0.08 inches (1.8–2 mm) long and glabrous. Fruits are a capsule 0.5 to 0.6 inches (13–16 mm) long, with light-brown, disk-shaped seeds.

Life History

This species flowers from May to early-July (mid-June to early-July in Wyoming), probably in response to drier and cooler climatic conditions, and produces fruits from late-June to mid-July. Each fruit contains an average of 25 to 35 seeds. Seeds are released in late-August to September, are often buried in shifting sand, and can remain viable for 20 years.

Prolonged wet conditions and abrasion are required for breaking dormancy and seed germination. The plant is primarily an outcrosser (transfers genes from one plant of the same species to another plant of the same or closely related species), although studies show that it is potentially self-fertile (Fertig 2000).

The blowout penstemon is also capable of spreading vegetatively by the production of adventitious roots from buried stems (Barr 1982, Stubbendick et al. 1997). This is an adaptation for surviving burial by windblown sands.

The blowout penstemon occurs in "blowouts," sparsely vegetated depressions in actively shifting sand dunes created by wind erosion. In Wyoming, the blowout penstemon occurs on steep north-facing slopes of active blowout-like sand dunes with sparse cover of blowout grass (*Redfieldia flexuosa*), thickspike wheatgrass (*Elymus macrouras*), lemon scurfpea (Psoralea sp.), and occasional rubber rabbitbrush (*Chrysothamnus nauseosus*). The dunes in Wyoming may be 60–120 feet (18–37 m) high and occur at elevations of 6,680–7,440 feet (2,036–2,268 m)—much higher elevations than in Nebraska. In addition the Wyoming populations receive a lower mean annual precipitation and cooler maximum and minimum summer temperatures. Plants are not evenly distributed throughout their habitat but are found in sparse, nonrandom clusters (Fertig 2000).

Population Distribution

There are two known endemic populations of the blowout penstemon in the United States: one in the sand hills of west-central Nebraska and the second in the northeastern Great Divide Basin in Carbon County, Wyoming. Currently only 3,500–5,000 plants are found in Nebraska, at approximately 13 sites. The first record of blowout penstemon in Wyoming comes from an undated collection made by the Hayden expedition and attributed to the "Laramie Mountains" by Watson (1891). Pennell (1920) noted that this specimen was possibly misidentified. Later, Pennell (1935) reported that a presumed duplicate of Hayden's specimen at the Missouri Botanical Garden was labeled "Loup Fork," a site in the Nebraska Sand Hills. Much of the confusion concerning Hayden's whereabouts stems from the assumption of Pennell (1920, 1935) that the P. haydenii collections from the Missouri Botanical Garden and Gray Herbarium are duplicates, when in fact they probably represent different collections separated by 20 years and several hundred miles (Fertig 2000). The Wyoming populations were later rediscovered in 1996 and 2000. In July 1999, samples were collected from the Bradley Peak population in full bloom, and identification was confirmed by the New York Botanical Garden and the University of Nebraska.

RMPPA Distribution

The Wyoming populations of blowout penstemon are known from two locations: (1) Bear Mountain-Junk Hill and (2) Bradley Peak. The Bradley Peak population is limited to an area of about 20 acres in northern Carbon County and contains 300–500 plants. The Bear Mountain-Junk Hill population covers approximately 100 acres in northern Carbon County and contains 3,950–5,540 plants. These populations are subdivided into 9 subpopulations that occupy about 120 acres within a 5-square-mile area, occurring mostly on Bureau and state-administered lands.

Reproduction and Survivorship

No long-term trend data is available on the Wyoming population, however survey data on two subpopulations have been collected from 2000 through 2003.

There was a sharp decline in the Nebraska population is also unknown, although wildland fire control, severe drought, improvements in range management, leveling of sand dunes, and outbreaks of pyralid moths have all been identified as causes (Fertig, 2000).

Some evidence indicated that drought might be the primary threat to the existence of the species. In years with lower-than-normal precipitation or in the end period of intensive grazing, livestock have been observed to closely graze almost every available plant when more favorable forage is limited. In nondrought situations, studies in Nebraska have found that livestock grazing is rarely a threat to blowout penstemon, although the flowering stalks may be eaten occasionally by deer and elk (Stubbendieck et al 1997). Grazing could be a management tool to help maintain blowout habitat by reducing sand dune vegetation (Fertig 1999).

Sand mining near Ferris Mountains occurs near the recreational area along Seminoe Road, near Seminoe Reservoir. Sand removed from the area is used mainly for golf courses. Mining in habitats of known populations is not feasible because of the isolated and rugged terrain where known populations are found.

Oil and gas exploration and development have the potential to negatively impact the plants' habitat. However, to avoid blowout penstemon habitat, companies would be required to move pads to adjacent areas and drill diagonally.

Invasive and noxious weeds have the potential to threaten habitat and populations of penstemon as a result of competition with noxious and invasive weeds. Noxious and invasive weed control activities could affect the penstemon depending on how and where they are performed, and with what pesticide. The use of pesticides could have the potential to negatively affect the penstemon's pollinators.

OHV activity may have both beneficial and negative impacts to penstemon and its habitat. OHV activities may ensure continued soil disturbance and erosion, possibly creating new habitat; however driving over plants could cause mortality.

Management Status Recovery and Conservation Planning

A recovery plan for blowout penstemon was prepared by Michael Fritz of the Nebraska Game and Parks Commission; James Stubbendieck , Ph.D., of the University of Nebraska; and Wallace Jobman of the Service for Region 6, Denver, CO, on July 17, 1992. However this plan has not been revised to incorporate the Wyoming populations. The plan's recovery criteria to downlist the species from Endangered to Threatened is as follows:

1. A minimum of 10,000 individuals in at least 5 population groups is established

2. The five populations have the minimum level of protection that will ensure their continued existence.

3. Delisting considered when (1) a minimum of 15,000 individuals in at least 10 population groups, each with a minimum population of 300 plants, is established; and (2) the 10 populations are demonstrated to be at minimum viable population levels.

A "Penstemon Haydenii (Blowout Penstemon) Conservation Agreement, Assessment, and Strategy" is in draft stages for Wyoming at this time and is expected to be finalized in the near future. The conservation objectives of this agreement include the following: (1) Follow established land management policies and regulations which provide for long-term protection of penstemon haydenii; (2) Conduct surveys and inventories to locate and monitor populations of the species; (3) Monitor populations and conduct research to determine species life history, minimum viable population parameters, habitat requirements, and management criteria; (4) Initiate land exchanges or protection on state lands; (5) Prevent and alleviate negative impacts on management actions; (6) Protect from international trade and commercial exploitation; (7) Reintroduce or introduce populations in suitable habitats; (8) Protect naturally occurring, reintroduced, and introduced populations and their habitats; (9) Maintain seed source and genetic variability in an artificial seed bank; and (10) Carry out public education to develop awareness and support for the preservation of the species.

The following habitat conservation measures and species conservation measures will be implemented within the RMPPA in areas where there is the potential for the blowout penstemon plant to occur. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the blowout penstemon plant.

Blowout Penstemon Habitat and Species Conservation Measures

1. These two conservation measures will be added to grazing permit renewals in allotments with known blowout penstemon populations.

A. Place mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from known blowout penstemon populations. Do not place supplemental feed for livestock, wildlife, or wild horses within 1.0 mile of known blowout penstemon populations. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from blowout penstemon populations and subsequent grazing on the blowout penstemon plants. Surveys for blowout penstemon will be conducted in potential blowout penstemon habitat prior to livestock operations projects.

B. The Bureau will not increase livestock stocking levels in any allotment with pastures containing blowout penstemon populations without consulting the Service. It is unknown to what extent overall impacts due to livestock grazing have on the blowout penstemon—whether it is detrimental due to actual grazing and trampling of plants or beneficial due to livestock removal of adjacent competing vegetation.

2. Biological control of noxious plant species will be prohibited in blowout penstemon habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The Bureau will monitor biological control vectors.

3. Except in cases of extreme ecological health threats (insect or weed outbreaks/infestations), herbicide treatment of noxious plants/weeds will be prohibited within 0.25 mile of known blowout penstemon populations and insecticide treatments will be prohibited within 1.0 mile of known blowout penstemon populations to protect pollinators.

Where insect or weed outbreaks have the potential to degrade area ecological health inside the buffers listed above, at the discretion of the Bureau's authorized officer and with concurrence by the Service, the following will apply: where needed, and only on a case-by-case basis, pesticide use within 1.0 mile of known blowout penstemon populations will be applied by hand and herbicides applied by hand within 0.25 mile of blowout penstemon populations, with care taken not to spray blowout penstemon plants.

Aerial application of herbicides will be carefully planned to prevent drift in areas near known blowout penstemon populations (outside of the 0.25 mile buffer). The Bureau will work with the Animal and Plant Health Inspection Service (APHIS), the Service, and County Weed and Pest Agencies to select pesticides and methods of application that will most effectively manage the infestation and least affect the blowout penstemon.

4. If revegetation projects are conducted within 0.25 miles of known blowout penstemon habitat, only native species will be selected. However, no revegetation projects will be done in known or potential blowout penstemon habitats as the plant requires open non-vegetated to sparsely vegetated sand dune habitat. This conservation measure will be applied within 0.25 miles of known blowout penstemon habitat and will be done to keep non-native species from competing with the blowout penstemon.

5. Limit the use of off-highway vehicles (OHVs) to designated roads and trails within 1.0 mile of *known* blowout penstemon populations, with no exceptions for the "performance of necessary tasks" other than fire fighting and hazardous material cleanup allowed using vehicles off of highways. No OHV competitive events will be allowed within 1.0 mile of known blowout penstemon populations. Existing

roads near blowout penstemon populations that are not required for operations or maintenance, or that lead to abandoned projects will be reclaimed as directed by the Bureau.

6. Apply a condition of approval (COA) on all applications for permit to drill (APDs) oil and gas wells for sites within 0.25 miles of any known blowout penstemon populations. This COA will prohibit all authorized surface disturbance and OHV travel from sites containing blowout penstemon populations. Operations outside of the 0.25 mile buffer of the blowout penstemon population, such as "directional drilling" to reach oil or gas resources underneath the blowout penstemon habitat would be acceptable.

7. For known blowout penstemon populations, the Bureau will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within a 0.25 mile of known blowout penstemon populations. For existing oil and gas leases with known blowout penstemon populations, the Bureau will require the COA in conservation measure #6 above including the same 0.25 mile buffer area around those known blowout penstemon populations.

8. The disposal (sale and removal) of salable minerals, which includes sand, is a discretionary Bureau action and is prohibited within a 0.25 mile buffer area of known blowout penstemon populations.

9. To prevent loss of habitat for the blowout penstemon, the Bureau "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that was used historically, that has retained its potential to sustain listed species, and is deemed to be essential to their survival" (BLM 2001). Prior to any land tenure adjustments in known blowout penstemon habitat, the Bureau will survey to assess the habitat boundary and retain that area in Federal ownership. Bureau-administered public lands that contain identified habitat for the blowout penstemon will not be exchanged or sold, unless it benefits the species.

10. All proposed rights-of-way projects (powerlines, pipelines, roads, etc.) will be designed and locations selected at least 0.25 mile from any known blowout penstemon habitat to minimize disturbances. If the avoidance of adverse effects is not possible, the Bureau will re-initiate consultation with the Service over the effects of the RMP to the blowout penstemon.

11. The Bureau may have other proposed projects which have not specifically been covered with a buffer distance conservation measure in the above list. Such proposed projects will (1) be designed and locations selected to minimize disturbances to known blowout penstemon populations and (2) will not be authorized within 0.25 miles of any known blowout penstemon populations without concurrence of the Service and the Bureau-authorized officer. If avoidance of adverse effects is not possible, the Bureau will re-initiate consultation with the Service over the effects of the RMP to the blowout penstemon.

Best Management Practices

1. When project proposals are received, BLM will initiate coordination with the USFWS at the earliest possible date so that both agencies can advise on project design. This should minimize the need to redesign projects at a later date to include blowout penstemon conservation measures, determined as appropriate by the USFWS.

2. Designate Areas of Critical Environmental Concern (ACECs) for the known populations of blowout penstemon (will add future populations to the ACEC as they are found) within all four affected Field Offices, beginning with the Rawlins FO. If these known populations of blowout penstemon are designated as an ACEC, they will require a plan of operations to be completed for any operations causing surface disturbance greater than causal use and a National Environmental Policy Act (NEPA) review before locatable mineral claims can be explored, mined and developed (43 CFR 3809 regulations).

3. The BLM will participate in the development of both, a conservation agreement, assessment and strategy and a species specific recovery plan for the blowout penstemon in coordination with the USFWS and other agencies as appropriate. Populations and habitat of the blowout penstemon on BLM-administered lands will be monitored to determine if recovery/conservation objectives are being met.

4. Limit the use of off highway vehicles (OHVs) to designated roads and trails within 1.0 mile of potential blowout penstemon habitat, with no exceptions for the performance of necessary tasks other than fire fighting and hazardous material cleanup allowed using vehicles off road. No OHV competitive events will be allowed within 1.0 mile of potential blowout penstemon populations.

5. Coordinate with the USFWS, the National Resource Conservation Service, and private landowners to ensure adequate protection for the blowout penstemon and its habitat when new activities are proposed, and to work proactively to enhance the survival of the plant.

6. To prevent grazing of blowout penstemon plants by livestock, keep livestock at least 0.25 mile away from known blowout penstemon populations during the essential growing season (from April 15 to September 15 – the growing, flowering and fruiting stages) through herding of livestock away from known blowout penstemon populations or by excluding livestock from pastures with known blowout penstemon populations.

7. Known blowout penstemon habitat should be fenced to keep livestock from grazing blowout penstemon plants. However, this is usually not practicable due to the difficulty in placing fences in a sandy substrate and high maintenance costs or the inability to maintain the fences at all. Placement of permanent fencing, or temporary electric fences around blowout penstemon populations and habitat could be done on a larger scale by fencing off a much larger area around sand dunes. Generally the sand dune complexes that comprise blowout penstemon habitat are very extant, sometimes running for dozens of miles, making fencing difficult to impossible. In the unlikely event that permanent fencing is placed around known blowout penstemon populations or habitats during the essential growing season, mineral supplements and water sources may be placed outside of the fences closer than the 1.0 mile specified in the conservation measures, to the known blowout penstemon habitat at the discretion of the BLM's authorized officer.

8. In the event that a new population of blowout penstemon is found, the USFWS Wyoming Field Office (307-772-2374) will be notified within one week of discovery.

9. Initiate land tenure adjustments to acquire lands with populations of blowout penstemon or potential habitat to ensure a higher level of protection under the ESA on Federal lands for the blowout penstemon.

10. To prevent loss of habitat for the blowout penstemon, the BLM "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that was used historically, that has retained its potential to sustain listed species, and is deemed to be essential to their survival" (BLM 2001). Prior to any land tenure adjustments in *potential* blowout penstemon habitat, the BLM will survey to assess the potential for the existence of blowout penstemon. While it is difficult to assess whether the blowout penstemon was historically present on such sites, the BLM should try and retain in Federal ownership all habitats essential for the survival and recovery of the blowout penstemon, including habitat that was used historically, that has retained its potential to sustain this listed species, and is deemed to be essential to their survival (BLM 2001). Potential blowout penstemon habitat may be used for reintroduction efforts and is important for the recovery and enhancement of the species.

11. Form a steering committee to develop and prioritize management practices and assist BLM and USFWS with research projects.

12. A comprehensive inventory of the Dune Pond CMA area for blowout penstemon should be completed (Rawlins FO).

13. Conduct inventories for blowout penstemon in areas with potential habitat in the Rawlins, Casper, Rock Springs, and Lander FOs (The University of Wyoming, Wyoming Natural Diversity Database recently completed a "Survey of Penstemon haydenii (Blowout Penstemon) in Wyoming 2004," which documented all known locations of blowout penstemon in Wyoming through 2004).

14. Maintain a database of all searched, inventoried, or monitored blowout penstemon sites.

15. Analyze vegetation treatments (mowing, prescribed fire, mechanical treatments, etc.) in known or potential blowout penstemon habitat for impacts to the species. Fire management activities will be utilized to maintain early successional plant communities which would potentially provide additional habitat for the blowout penstemon plant.

16. Monitor blowout penstemon sites for invasion by noxious and invasive plant species.

17. Establish monitoring, biological, ecological, and life history studies as funding and staffing allow, such as, monitoring current populations each year for trends, studies regarding identification of pollinators, genetics, life history, effects of pesticides and herbicides, seed viability and germination, and studies regarding monitoring the success of reintroduction efforts. The Rawlins FO is currently conducting pollination studies through Utah State University, USDA ARS Bee Biology & Systematics Laboratory.

18. Collect and bank blowout penstemon seeds at local, regional, national, and international arboreta, seed banks, and botanical gardens as insurance against catastrophic events, for use in biological studies, and for possible introduction/reintroduction into potential habitat.

19. Train law enforcement personnel on protections for the plant and its habitat, its status, and current threats to its existence.

20. Educate resource specialists, rangers, and fire crews about the blowout penstemon and its habitat to help with project design for the general area and for fire suppression actions occurring in potential habitat for the blowout penstemon and on the habitat characteristics and plant identification for the plant, so that if they encounter a penstemon occurring in sandy habitats, they can report it to their office threatened and endangered species specialist.

21. The BLM should work towards developing reintroduction sites in coordination with the USFWS and to maintain the integrity of these sites for the survival of the blowout penstemon. The objective would be to reintroduce populations of blowout penstemon into areas of historic occurrence and introduce new populations in suitable habitat within the plant's historic range.

22. Develop propagation techniques and use them to reintroduce/introduce the blowout penstemon and to repopulate known populations in the event population recovery becomes necessary.

Colorado Butterfly Plant (*Guara neomexicana coloradensis*)

Listing Status: Federal—Threatened, November 17, 2000

The Service listed the Colorado butterfly plant as Threatened in 2000 (USFWS 2000). At the time of listing (USFWS 2000), the Service had not designated Critical habitat; however at this time Critical habitat has been designated and is discussed below.

Species Description

The Colorado butterfly plant has one or a few reddish, hairy stems that are 2–3 feet (61-91 cm) tall. The lower leaves are lance-shaped, with smooth or wavy-toothed margins, and average 2–6 inches (5–15 cm) long, while those on the stem are smaller or reduced in number. Flowers are arranged in a branched, elongate pattern above the leaves. Only a few flowers are open at any one time, and these are located below the rounded buds and above the mature fruits.

Individual flowers are 1/4-inch to 1/2-inch (6-13 millimeters) long, with four reddish sepals and four white petals that turn pink or red with age. The hard, nutlike fruits are four-angled and have no stalk.

Life History

The Colorado butterfly plant is a short-lived perennial herb. Flowering occurs from late-June or early-July until the first hard frost of fall (usually mid-September to early-October). The plant lives vegetatively for several years before bearing fruit once and then dying. Fruit is present from late-July to early-October. It reproduces only by seed. Plants are self-fertile but also outcross. Flowers open at dusk and are pollinated by moths (Fertig 2001).

This plant typically occurs on subirrigated, alluvial soils on level or slightly sloping floodplains and drainage bottoms at elevations of 5,000–6,400 feet (1,524–1,951 m). Colonies are often found in low depressions or along bends in wide meandering stream channels. Most populations are found a short distance from the actual channel and may even occur at the base of low alluvial ridges at the interface between riparian meadows and drier grasslands. This plant occurs on soils derived from conglomerates, sandstones, and tuffaceous mudstones and siltstones of the Tertiary Wind River, and Arikaree and Ogalalla formations (Fertig 2001). The plant requires early- to mid-succession riparian habitat. It commonly occurs in communities dominated by *Agrostis stolonifera* (redtop) and *Poa pratensis* (Kentucky bluegrass) on wetter sites, and *Glycyrrhiza lepidota* (wild licorice), *Cirsium flodmanii* (Flodman's thistle), *Grindelia squarrosa* (curlycup gumweed), and *Equisetum laevigatum* (smooth scouring rush) on drier sites.

Both of the habitat types are usually intermediate in moisture, between wet streamside communities dominated by sedges, rushes, and cattails, and dry, upland shortgrass prairie. Typical Colorado butterfly plant habitat is open, without dense or overgrown vegetation. Properly functioning riparian systems provide conditions favorable for establishment and maintenance of riparian-dependent species such as this plant.

Population Distribution

Prior to 1984, no extensive documentation of the plant's range had been conducted. The Colorado butterfly plant is a regional endemic of southwestern Nebraska, southeastern Wyoming, and northeastern Colorado. In Wyoming, the Colorado butterfly plant is known only from the southeastern plains in Laramie and Platte Counties, between the boundary of the Medicine Bow National Forest and the

Wyoming-Nebraska border. Recent surveys in Wyoming suggest that extant populations are probably stable, although population sizes may vary from year to year (Fertig 2001).

RMPPA Distribution

There are documented populations of the Colorado butterfly plant within the RMPPA. Two of the populations are located at F.E. Warren Air Force Base, in Cheyenne, WY. Other populations within the RMPPA are located on private lands, between the Medicine Bow National Forest boundary (Pole Mountain) and the Wyoming-Nebraska border, on Middle Crow Creek, North Fork Crow Creek, South Branch Crow Creek, Lodgepole Creek, and Horse Creek. There are three small populations that are found partly or fully on Wyoming state school trust lands, which are managed mostly for agricultural uses. Most of the plant population locations of Colorado butterfly plant that are known to occur exist on private lands. No populations are known to occur on Bureau-administered federal lands in the RMPPA.

Reproduction and Survivorship

The Colorado butterfly plant is an early successional species (not a pioneer species) adapted to periodically disturbed stream channel sites. Historically, flooding was probably the main cause of disturbance in the plant's habitat, although wildland fire and grazing also may have been important (Fertig 1996).

In general, threats to the species across its range include the following: (1) haying, (2) grazing, (3) herbicide spraying, and (4) urban expansion. Fertig (2001) suggests the primary threat may be vegetative succession in the absence of periodic disturbances that makes habitat unsuitable for seedling establishment. Other threats to the Colorado butterfly plant are the spraying of broadleaf herbicides, agricultural conversion of riparian areas, water diversions, channelization, and urban development.

Competition from non-native invasive plants can be a significant threat to the Colorado butterfly plant. Invasive species can outcompete the Colorado butterfly plant and reduce population numbers. Efforts to control Canada thistle, leafy spurge, and other invasive species with chemicals can pose a direct threat to the species. In addition many chemicals are restricted for use within riparian zones. Invasive species are often spread by livestock management and recreational activities but can also be spread by other land uses and management activities.

Management Status Recovery and Conservation Planning

There are no management recovery or conservation plans for this species within the RMPPA. The following habitat conservation measures and species conservation measures will be implemented within the RMPPA in areas where there is the potential for the Colorado butterfly plant to occur. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado butterfly plant.

Colorado Butterfly Plant Species and Habitat Conservation Measures

1. Grazing will be intensively managed within known habitat containing populations from July through August, to allow plants to bloom and go to seed.

2. Recreational site development will not be authorized in known Colorado butterfly plant habitat.

3. The Bureau will manage stream habitats with known populations of Colorado butterfly plant to retain, re-create, or mimic natural hydrology, water quality, and related vegetation dynamics. Projects

that may alter natural hydrology or water quality, change the vegetation of the riparian ecosystem and cause direct ground disturbance will be evaluated and redesigned to ensure that adverse effects to populations of the Colorado butterfly plant do not occur.

4. The Bureau will add the following two conservation measures to grazing permit renewals in allotments with known Colorado butterfly plant populations.

A. The Bureau will ensure the placement of mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from known Colorado butterfly plant populations. Supplemental feed for livestock, wildlife, or wild horses will not be authorized within 1.0 mile of known Colorado butterfly plant populations. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from Colorado butterfly plant populations and potential overgrazing of the areas occupied by the Colorado butterfly plant. Surveys for the Colorado butterfly plant will be conducted in potential Colorado butterfly plant habitat prior to livestock operations-related construction projects.

B. The Bureau will not increase permitted livestock stocking levels in any allotment with pastures containing known Colorado butterfly plant populations without consulting with the Service.

5. Biological control of noxious plant species will be prohibited within 1.0 mile from known Colorado butterfly plant habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The Bureau will monitor biological control vectors.

6. Except in cases of extreme ecological health (insect or weed outbreaks/infestations), herbicide treatment of noxious plants/weeds will be prohibited within 0.25 miles of known Colorado butterfly plant populations and insecticide treatments will be prohibited within 1.0 mile of known Colorado butterfly plant populations to protect pollinators.

Where insect or weed outbreaks have the potential to degrade area ecological health inside the buffers listed above, at the discretion of the Bureau's authorized officer and with concurrence by the Service, the following will apply: where needed, and only on a case-by-case basis, pesticide use within 1.0 mile of known Colorado butterfly plant populations will be applied by hand and herbicides applied by hand within 0.25 miles of Colorado butterfly plant populations, with care taken not to spray Colorado butterfly plants.

Aerial application of herbicides will be carefully planned to prevent drift in areas near known Colorado butterfly plant populations (outside of the 0.25 mile buffer). The Bureau will work with the Animal and Plant Health Inspection Service (APHIS), the Service and County Weed and Pest Agencies to select pesticides and methods of application that will most effectively manage the infestation and least affect the Colorado butterfly plant.

7. If revegetation projects are conducted within 0.25 miles of known Colorado butterfly plant habitat, only native species will be selected. This conservation measure will reduce the possibility that non-native species will be introduced and will compete with the Colorado butterfly plant.

8. The Bureau will limit the use of off road vehicles (OHVs) to designated roads and trails within 0.5 mile of known Colorado butterfly plant populations, with no exceptions for the "performance of necessary tasks" other than fire fighting and hazardous material cleanup allowed using vehicles off of

highways. No OHV competitive events will be allowed within 1.0 mile of known Colorado butterfly plant populations. Roads that have the potential to impact Colorado butterfly plants and are not required for routine operations or maintenance of developed projects, or lead to abandoned projects will be reclaimed as directed by the Bureau.

9. The Bureau will apply a condition of approval (COA) on all applications for permit to drill (APDs) oil and gas wells for sites within 0.25 miles of any known Colorado butterfly plant populations. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing Colorado butterfly plant populations. Operations outside of the 0.25 mile buffer of the Colorado butterfly plant population, such as "directional drilling" to reach oil or gas resources underneath the Colorado butterfly plant habitat would be acceptable.

10. For known Colorado butterfly plant populations, the Bureau will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within 0.25 miles of known Colorado butterfly plant populations. For existing oil and gas leases with known Colorado butterfly plant populations (these would be for newly discovered populations not currently documented), the Bureau will require the COA in conservation measure 9 above, including the same 0.25 mile buffer area around those known Colorado butterfly plant populations.

11. The disposal (sale and removal) of salable minerals, is a discretionary Bureau-authorized action and is prohibited within a 0.25 mile buffer area of known Colorado butterfly plant populations.

12. To prevent loss of habitat for the Colorado butterfly plant, the Bureau "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that was used historically, that has retained its potential to sustain listed species, and is deemed to be essential to their survival". Prior to any land tenure adjustments in known Colorado butterfly plant habitat, the Bureau will survey to assess the habitat boundary and retain that area in Federal ownership. Bureau-administered public lands that contain identified habitat for the Colorado butterfly plant will not be exchanged or sold, unless it benefits the species.

13. All proposed rights-of-way projects (powerlines, pipelines, roads, etc.) will be designed and locations selected at least 0.25 miles from any known Colorado butterfly plant habitat to minimize disturbances. If the avoidance of adverse affects is not possible, the Bureau will re-initiate consultation with the Service.

14. All proposed projects will be designed and locations selected to minimize disturbances to known Colorado butterfly plant populations, and if the avoidance of adverse effects is not possible, the Bureau will re-initiate consultation with the Service. Projects will not be authorized closer than 0.25 miles from any known Colorado butterfly plant populations without concurrence of the Service and the Bureau authorized officer. No ground disturbing construction activities will be authorized within 0.25 miles of any known Colorado butterfly plant populations during the essential growing season time period (from June through September, the growing, flowering and fruiting stages) to reduce impacts to the species.

15. In order to conserve and protect natural areas, planned recreational foot trails are created to control human traffic. The Bureau will create programs that will strive to protect the Colorado butterfly plant's habitat and prevent new trails from being created within 0.25 miles from known occurrences of the plant.

Best Management Practices

1. Maintain and restore the dynamics of stream systems, including the movement of streams within their floodplains, which are vital for the life cycle of this plant. Flow timing, flow quantity, and water table characteristics should be evaluated to ensure that the riparian system is maintained where these plants occur.

2. Prescribed fire and grazing activities shall be coordinated between biologists, rangeland management specialists, and fire personnel to ensure that no damage occurs to the plant habitat when being used to maintain the habitat for the species.

3. Maintain and restore the natural species composition and structural diversity of plant communities in riparian zones and wetlands.

4. Recreational foot trails that may be located adjacent to Colorado butterfly plant habitat should be constructed to reduce impacts to this species.

5. The Bureau should continue water use in a manner that maintains suitable habitat for the Colorado butterfly plant to benefit the species.

6. The Bureau will develop and implement a monitoring plan in known and potential habitat, which will include population trends, and the Bureau will participate in the species recovery plan.

7. Collect and bank Colorado butterfly plant seed at local and regional arboreta, seed banks, and botanical gardens, including the Denver Botanical Garden and the Cheyenne Botanical Garden, as insurance against catastrophic events, for use in biological studies, and for possible introduction into new habitat.

Colorado Butterfly Plant Critical Habitat

Listing Status: Critical Habitat, identified September 2004

Critical Habitat Description

Critical habitat identified specific areas, both occupied and unoccupied, that are essential to the conservation of a listed species and that may require special management considerations or protection. Critical habitat for the Colorado butterfly plant receives protection under section 7 of the ESA through the prohibition against destruction or adverse modification of Critical habitat with regard to actions carried out, funded, or authorized by a federal agency. Section 7 also requires consultation with the Service on federal actions that are likely to result in the destruction or adverse modification of proposed Critical habitat. Critical habitat identified by the Service must be essential to the conservation of the species and are areas that provide essential life cycle needs of the species. Not all areas that can be occupied by a species will be designated Critical habitat. The Service designates those areas as Critical habitat only if they are essential for that species.

Habitat is dynamic, and a species may move from one area to another over time. Designation of Critical habitat may not include all habitat eventually determined as necessary to recover the species. Critical habitat designations do not signal that habitat outside the Critical habitat designation is unimportant or may not be required for recovery. Areas outside the Critical habitat designations will continue to be subject to conservation actions that may be implemented under sections 7 and 9 of the ESA (USFWS 2002).

Life History

The life history of the Colorado butterfly plant is described above. This section discusses Critical habitat, as identified and authorized by the Service for the plant. Critical Habitat is defined in Section 3(5)(A) of the ESA as (1) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features essential to conserve the species and that may require special management considerations for protection; and (2) specific areas outside the geographic area occupied by a species at the time it is listed, upon determination that such areas are essential to conserve the species. The Service defines conservation as the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which listing under the ESA is no longer necessary (USFWS 2002).

Population Distribution

Critical habitat units include only river and stream reaches, and adjacent floodplains, that are within Laramie County, WY, for the Colorado butterfly plant, have the primary constituent elements present, and based on the best available scientific information, are believed to currently support the plant.

RMPPA Distribution

At this time there is no identified Critical habitat for the Colorado butterfly plant located on Bureau-administered lands within the RMPPA.

Reproduction and Survivorship

There are no management recovery or conservation plans for this species within the RMPPA. The following habitat conservation measures and species conservation measures will be implemented within the RMPPA in areas where there is the potential for the Colorado butterfly plant to occur.

Management Status Recovery and Conservation Planning

The regulations identified in the Federal Register, Vol. 69, No. 185, September 24, 2004, Proposed Rules, will be followed concerning management of activities that are located or have the potential to be located within Critical habitat for the Colorado butterfly plant. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Critical habitat for the Colorado butterfly plant

Colorado Butterfly Plant Designated Critical Habitat Species and Habitat Conservation Measures

1. The Bureau will apply a condition of approval (COA) on all applications for permit to drill (APDs) oil and gas wells for sites within 0.25 miles of any Colorado butterfly plant designated critical habitat. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing Colorado butterfly plant designated critical habitat. Operations outside of the 0.25 mile buffer of Colorado butterfly plant designated critical habitat, such as "directional drilling" to reach oil or gas resources underneath the Colorado butterfly plant designated critical habitat, would be acceptable.

2. The Bureau will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within 0.25 miles of Colorado butterfly plant designated critical habitat. For existing oil and gas leases with Colorado butterfly plant designated critical

habitat, the Bureau will require the COA in conservation measure 1 above including the same 0.25 mile buffer area around Colorado butterfly plant designated critical habitat.

3. Grazing will be intensively managed within designated critical habitat containing populations of Colorado butterfly plants from June through September, to allow plants to flower and go to seed.

4. Recreational site development will not be authorized in designated critical habitat for the Colorado butterfly plant.

5. The Bureau will ensure the placement of mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from Colorado butterfly plant designated critical habitat. Supplemental feed for livestock, wildlife, or wild horses will not be authorized within 1.0 mile of Colorado butterfly plant designated critical habitat. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from Colorado butterfly plant designated critical habitat and potential over-utilization of these designated critical habitats.

6. Projects that alter the natural hydrology, change the vegetation of the riparian ecosystem, or may cause direct ground disturbance will be redesigned to ensure that adverse effects to Colorado butterfly plant designated critical habitat do not occur.

Best Management Practices

1. Maintain and restore the dynamics of stream systems, including the movement of streams within their floodplains, which are vital for the life cycle of this plant. Flow timing, flow quantity, and water table characteristics should be evaluated to ensure that the riparian system is maintained within designated Critical habitat.

2. Prescribed fire and grazing activities shall be coordinated between biologists, rangeland management specialists, and fire personnel to ensure that no damage occurs to the designated Critical habitat when being used to maintain the habitat for the species.

3. Maintain and restore the natural species composition and structural diversity of plant communities in riparian zones and wetlands.

4. Recreational foot trails that may be located adjacent to designated Critical habitat for the Colorado butterfly plant should be constructed to reduce impacts to this habitat.

5. The Bureau should continue water use in a manner that maintains Critical habitat for the Colorado butterfly plant to benefit the species.

6. Monitor Colorado butterfly plan sites for invasion by noxious and invasive weeds. Evaluate herbicide and pesticide control for negative effects on a case-by-case basis.

7. Collect and bank Colorado butterfly plant sites for invasion by noxious and invasive weeds. Evaluate herbicide and pesticide control for negative effects on a case-by-case basis.

8. The Bureau will develop and implement a monitoring plan in designated Critical habitat, which will include population trends, and will participate in the species recovery plan.

Ute Ladies' tresses (*Spiranthes diluvialis*)

Listing Status: Federal—Threatened, February 1992

Species Description

The Ute ladies' tresses orchid is a perennial, terrestrial orchid with erect, glandular-pubescent stems 8 to 20 inches (20 to 50 cm) tall, arising from tuberous-thickened roots. Its narrow leaves are about 11 inches (28 cm) long at the base of the stem and become reduced in size going up the stem. This species flowers from late-July to September. Plants probably do not flower every year and may remain dormant below ground during drought years. The flowers consist of 3 to 15 small white- to ivory-colored flowers clustered into a spike arrangement at the top of the stem. Whitish, stout, spirally arranged flowers characterize the species. The sepals and petals, except for the lip, are rather straight, although the lateral sepals are variably oriented, with these often spreading abruptly from the base of the flower. Sepals are sometimes free to the base. The lip lacks a dense cushion of trichomes on the upper surface near the apex. The rachis is sparsely to densely pubescent, with the longest trichomes 0.008 inches (0.2 cm) long or longer.

Life History

This plant typically blooms from late-July through August, in some cases through September. Blooms were recorded as early as early-July and as late as early-October. Reproduction is strictly sexual. Reproductively mature plants do not flower every year. These plants may take 5–10 years to reach reproductive maturity.

The Ute ladies' tresses orchid is endemic to moist soils in mesic or wet meadows; subirrigated or seasonally flooded soils in valley bottoms; gravel bars; old oxbows; or floodplains bordering springs, lakes, rivers, or perennial streams between 1,780 and 6,800 feet in elevation (543 to 2,073 m) (Fertig and Beauvais 1999). The species occurs primarily in areas where the vegetation is relatively open and not overly dense, overgrown or overgrazed. Populations have been documented from alkaline sedge meadows, riverine floodplains, flooded alkaline meadows adjacent to ponderosa pine-Douglas fir woodlands, sagebrush steppe, and streamside floodplains.

Known sites of this species often have low vegetative cover and may be subjected to periodic disturbances (e.g., flooding or grazing). Populations are often dynamic and shift within a watershed as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais 1999). The Ute ladies' tresses orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as light grazing, that are common to grassland riparian habitats and which reduce competition between the orchid and other plants (USFWS 1995). The species is known to establish in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails (USFWS 1995).

Population Distribution

The Ute ladies' tresses orchid is known to occur from western Nebraska, southeastern Wyoming, north-central Colorado, northeastern and southern Utah, east-central Idaho, southwestern Montana, and north-central Washington (Moseley 1998). The total population is approximately 20,500 individuals.

In Wyoming, Ute ladies' tresses populations are presently known from four locations. Fertig, in 1998–99, revisited all four populations and documented 800–1,200 individuals in a total area of less than 10 acres. Most of the populations in Wyoming occur in moist meadow communities dominated by redtop (*Agrostis*

stolonifera), Baltic rush (*Juncus balticus*), switchgrass (*Panicum virgatum*), and foxtail barley (*Hordeum jubatum*) within a narrow band between emergent aquatic vegetation and adjacent dry upland prairie. Vegetative cover is typically 75–90 percent, but is usually short—under 18 inches (45 cm) tall (Fertig 2000). The only exception is the Converse County population, which is associated with a cattail marsh among tall, dense grasses.

RMPPA Distribution

The Ute ladies' tresses occur at four locations in Wyoming. One of these is in the RMPPA, in Laramie County on private lands. The Goshen County population occurs on state and public land just north of the RMPPA administrative boundary within the Bureau's Casper Field Office administrative boundary. Bureau-authorized searches (1994–2001) for the species have been performed at several locations in Wyoming, with no additional populations being located. To date no populations of Ute ladies' tresses are known to occur on public lands within the RMPPA.

Reproduction and Survivorship

The species is threatened primarily by habitat loss and modification, though its small populations and low reproductive rate make it vulnerable to other threats. The riparian and wetland habitats required by this species have been heavily impacted by urban development, heavy grazing, stream channelization, water diversions, other watershed and stream alterations that reduce the natural dynamics of the stream system, recreation, and invasion of habitat by exotic plant species (USFWS 1995).

Wyoming's populations of Ute ladies' tresses are largely unthreatened under current management but could become vulnerable by changes in land uses (Fertig 2000). The following potential threats have been identified in the literature that may affect survivorship: (1) urbanization, (2) grazing, (3) mowing, (4) flood control, (5) pesticide use, (6) competition from introduced noxious and invasive weeds, (7) natural herbivory, (8) loss of pollinators, (9) recreation, and (10) overcollection.

The effects of grazing are largely unknown. The largest populations of the species, in Utah and Colorado, are grazed during the winter, when they are dormant, with no noticeable effect on the species. It is plausible that moderate winter grazing may be beneficial to the species.

Management Status Recovery and Conservation Planning

There are no management recovery or conservation plans for this species within the RMPPA. The Ute Ladies' tresses Agency Review Draft Recovery Plan was completed in 1995 and seeks to address the plant recovery by maintaining and restoring ecological processes that create and maintain good orchid habitat. The RMPPA biologists recognize and use this draft plan.

The following habitat conservation measures and species conservation measures will be implemented within the RMPPA in areas where there is the potential for the Ute ladies' tresses plant to occur. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Ute ladies'-tresses plant.

Ute Ladies'-tresses Plant Species and Habitat Conservation Measures

1. Grazing will be intensively managed within known habitat containing populations from July through September, to allow plants to bloom and go to seed.

2. Recreational site development will not be authorized in known Ute ladies'-tresses habitat.

3. The Bureau will manage stream habitats with known populations of Ute ladies'-tresses to retain, re-create, or mimic natural hydrology, water quality, and related vegetation dynamics. Projects that may alter natural hydrology or water quality, change the vegetation of the riparian ecosystem and cause direct ground disturbance. These projects may adversely affect the orchid. These projects will be evaluated and redesigned to ensure that adverse effects to known populations of Ute ladies'-tresses do not occur.

4. The Bureau will add the following two conservation measures to grazing permit renewals in allotments with known populations of Ute ladies'-tresses.

A. The Bureau will ensure the placement of mineral supplements, or new water sources (permanent or temporary), for livestock, wild horses, or wildlife at least 1.0 mile from known Ute ladies'-tresses populations. Supplemental feed for livestock, wildlife, or wild horses will not be authorized within 1.0 mile of known Ute ladies'-tresses populations. Straw or other feed must be certified weed-free. These restrictions are intended to keep free-ranging livestock away from Ute ladies'-tresses populations and potential overgrazing of the areas occupied by these orchids. Surveys for Ute ladies'-tresses will be conducted in potential Ute ladies'-tresses habitat prior to livestock operations-related construction projects.

B. The Bureau will not increase permitted livestock stocking levels in any allotment with pastures containing known Ute ladies'-tresses populations without consulting with the Service.

5. Biological control of noxious plant species will be prohibited within 1.0 mile from known Ute ladies'-tresses orchid habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The Bureau will monitor biological control vectors.

6. Except in cases of extreme ecological health (insect or weed outbreaks/infestations), herbicide treatment of noxious plants/weeds will be well-regulated within 0.25 miles of known populations of the orchid and insecticide treatments will be well- regulated within 1.0 mile of known populations of Ute ladies'-tresses orchids to protect pollinators.

Where insect or weed outbreaks have the potential to degrade area ecological health inside the buffers listed above, at the discretion of the Bureau's authorized officer and with concurrence by the Service, the following will apply: where needed and only on a case-by-case basis, a pesticide use proposal or other site specific plan will address concerns of proper timing, methods of use, and chemicals. Pesticides specific to dicots will be preferred where these are adequate to control the noxious weeds present.

Aerial application of herbicides will be carefully planned to prevent drift in areas near known populations of Ute ladies'-tresses orchids (outside of the 0.25 mile buffer). The Bureau will work with the Animal and Plant Health Inspection Service (APHIS), the Service, and County Weed and Pest Agencies to select pesticides and methods of application that will most effectively manage the infestation and least affect Ute ladies'-tresses orchids.

7. If revegetation projects are conducted within 0.25 miles of known habitat for Ute ladies'-tresses orchids, only native species will be selected. This conservation measure will reduce the possibility that non-native species will be introduced and will compete with Ute ladies'-tresses orchids.

8. The Bureau will limit the use of off road vehicles (OHVs) to designated roads and trails within 0.5 mile of known Ute ladies'-tresses populations, with no exceptions for the "performance of necessary tasks" other than fire fighting and hazardous material cleanup allowed using vehicles off of highways. No OHV competitive events will be allowed within 1.0 mile of known Ute ladies'-tresses populations. Roads that have the potential to impact Ute ladies'-tresses orchids and are not required for

routine operations or maintenance of developed projects, or lead to abandoned projects will be reclaimed as directed by the Bureau.

9. The Bureau will apply a condition of approval (COA) on all applications for permit to drill (APDs) oil and gas wells for sites within 0.25 miles of any known populations of Ute ladies'-tresses orchids. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing populations of Ute ladies'-tresses orchids. Operations outside of the 0.25 mile buffer of orchid populations, such as "directional drilling" to reach oil or gas resources underneath the orchid's habitat, would be acceptable.

10. For known Ute ladies'-tresses populations, the Bureau will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within 0.25 miles of known Ute ladies'-tresses populations. For existing oil and gas leases with known Ute ladies'-tresses populations (these would be for newly discovered populations not currently documented), the Bureau will require the COA in conservation measure 9 above, including the same 0.25 mile buffer area around those newly discovered populations of the orchid for new APDs.

11. The disposal (sale and removal) of salable minerals is a discretionary Bureau action and is prohibited within a 0.25 mile buffer area of known populations of Ute ladies'-tresses orchids.

12. To prevent loss of habitat for the orchid, the Bureau "shall retain in Federal ownership all habitats essential for the survival and recovery of any listed species, including habitat that was used historically, that has retained its potential to sustain listed species, and is deemed to be essential to their survival" (BLM 2001). Prior to any land tenure adjustments in known habitat for Ute ladies'-tresses orchids, the Bureau will survey to assess the habitat boundary and retain that area in Federal ownership. Bureau-administered public lands that contain identified habitat for the orchid will not be exchanged or sold, unless it benefits the species.

13. All proposed rights-of-way projects (powerlines, pipelines, roads, etc.) will be designed and locations selected at least 0.25 miles from any known Ute ladies'-tresses orchid habitat to minimize disturbances. If avoidance of adverse effects is not possible, the Bureau will re-initiate consultation with the Service.

14. All proposed projects will be designed and locations selected to minimize disturbances to known Ute ladies'-tresses orchid populations, and if the avoidance of adverse effects to known populations is not possible, the Bureau will re-initiate consultation with the Service. Projects will not be authorized closer than 0.25 miles from any known Ute ladies'-tresses populations without concurrence/re-initiation of consultation of the Service and the Bureau authorized officer. No ground disturbing construction activities will be authorized within 0.25 miles of any known Ute ladies'-tresses orchid populations during the essential growing season time period (from July through September, the growing, flowering and fruiting stages) to reduce impacts to the species.

15. In order to conserve and protect natural areas, planned recreational foot trails are created to control human traffic. The Bureau will create programs that will strive to protect Ute ladies'-tresses orchid habitat and prevent new trails from being constructed within 0.25 miles from known occurrences of the orchid.

Best Management Practices

1. Maintain and restore the dynamics of stream systems to benefit Ute ladies' tresses, including the movement of streams within their floodplains, which are vital for the life cycle of this plant. Flow timing,

flow quantity, and water table characteristics should be evaluated to ensure that the riparian system is maintained where these plants occur.

2. Prescribed fire and grazing activities shall be coordinated between biologists, rangeland management specialists, and fire personnel to ensure that no damage occurs to the plant habitat when being used to maintain the habitat for the species.

3:. Maintain and restore the natural species composition and structural diversity of plant communities in riparian zones and wetlands.

4. Recreational foot trails that may be located adjacent to Ute ladies' tresses plant habitat should be constructed to reduce impacts to this species.

5. The Bureau should continue water use in a manner that maintains suitable habitat for the Ute ladies' tresses orchid to benefit the species.

6. The Bureau should develop and implement a monitoring plan in known and potential habitat, which will include population trends, and participate in the species recovery plan.

7. Collect and bank Ute ladies' tresses plant seed at local and regional arboreta, seed banks, and botanical gardens, including the Denver Botanical Garden and the Cheyenne Botanical Garden, as insurance against catastrophic events, for use in biological studies, and for possible introduction into new habitat.

Analysis of the Effects of the Actions

The RFO RMP EIS was reviewed to identify actions with potential to affect the listed species in the RMPPA. The Service, Cheyenne, WY, and the Bureau RMPPA conferred for additional information on each species and actions occurring within the RMPPA. In some cases ground surveys and inventories have been conducted by the Bureau, the Service, WYNDD, WGFD, and other consultants as part of other planning documents, and species recovery plans also were reviewed for further information on habitat, occurrences, life histories, and conservation measures.

Activity Description

Each major resource activity occurring on the public lands in the RMPPA where management prescriptions may affect listed species are identified in the following discussions and are located in Table 7.

Effects Analysis

The BA analyzes the impacts of a proposed, discretionary federal action. A federal action is defined as anything authorized, funded, or carried out by the federal agency. Direct impacts are those effects on the species or its habitat which are caused by an action, and occur at the same time and place as the action. Indirect impacts are those effects on the species or its habitat caused by an action, occurring later in time or further removed in distance than direct impacts, but which are still reasonably foreseeable. The analysis of all impacts includes the effects of interrelated and interdependent actions.

For the purposes of effects analysis under the ESA, cumulative effects are defined as effects on a species caused by other projects and activities unrelated to the action under consideration, and effects of future state or private activities not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation. Future federal actions will be subject to the consultation requirements established in Section 7 of the ESA, and therefore are not considered cumulative to the proposed action.

Factors considered when analyzing impacts include, among others: proximity of the action to the species or habitat of concern, geographic distribution of the action disturbance, timing of the action, nature of the action effect, action disturbance frequency, duration of the affecting action, action disturbance intensity, and action disturbance severity.

The BA process is focused primarily on adverse impacts to the species of concern. Even though impacts may have both a beneficial and detrimental effect on the subject species in either the long- or short-term, the effects determination of the assessment will be based on and controlled by the likelihood of adversely affecting the species. The impact analysis is <u>not</u> an averaging process.

Effects Determinations

The following determinations will be made following the Bureau analysis of project activities as they affect each T&E and Special Status Species. The determination categories located in Table 1 are considered a part of this BA and include the following:

Threatened and Endangered Species

- No effect (NE)—The appropriate conclusion when the Bureau RMPPA determines its proposed action will not affect listed species. The principle factor for this determination is that "suitable habitat" does not exist for the species in the area where the activity would occur.

- May affect, but is not likely to adversely affect (NL-b, -i, -d)—The appropriate conclusion when effects on listed species are expected to be discountable (-d) or insignificant (-i) or completely beneficial (-b). This type of effect requires informal Section 7 consultation with the Service and concurrence with the determination.

  - NL-b indicates that actions that result in this determination will have only beneficial impacts for the species.
  - NL-i indicates that actions that result in this determination will be so small or immeasurable that they would be considered insignificant.
  - NL-d indicates that actions that result in this determination will be so rare as to be considered discountable.

- Where further details are appropriate concerning these effects and determinations, see the "Analysis of Management Actions and Effects Determinations" section. Individual determinations of analysis and effects determinations will be done on a case-by-case basis for individual projects.

  May affect, is likely to adversely affect (LAA)—The appropriate conclusion if any adverse effect to the listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. In the event the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects, then the proper effect determination for the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires formal Section 7 consultation with the Service.

Proposed Species (includes Nonessential Experimental Populations)

- Is not likely to jeopardize proposed species (NJ)—the appropriate conclusion when the action agency identifies situations in which the proposed action is not likely to jeopardize the continued existence of the proposed species. If this determination were reached, informal conference with the Service would be conducted on a case-by-case basis.

- Is likely to jeopardize proposed species (LJ)—the appropriate conclusion when the action agency identifies situations in which the proposed action is likely to jeopardize the continued existence of the proposed species. If this determination is reached, formal conference with the Service is required.

Candidate and Bureau Sensitive Species

The ESA, Section 7 consultation process is not required for candidate species. However, since the two species identified above as candidate species may eventually become proposed or listed, there are advantages to addressing these candidate species as though they were already proposed for listing. Early technical coordination with the Service will also yield some collaborative management advantages. For these reasons, these species are included in this BA and will be analyzed as appropriate.

For the purposes of requesting technical assistance from the Service for the proposed action, the following language for candidate and Bureau sensitive species effects determinations will apply:

- No Impact (NI)—The appropriate conclusion when the Bureau determines its proposed action will not impact candidate and Bureau sensitive species or their essential habitat. This is based on the fact that the species habitat is not present and/or the impact would be so minimal in size that the species would not be affected. If this determination is reached, no coordination with the Service is apt to occur.
- May Impact, but not likely to contribute to the need for federal listing (MI)—the appropriate conclusion when the Bureau identifies situations in which the proposed action is likely to have an impact on individuals but will not likely impact the continued existence of the candidate and Bureau sensitive species, either local or rangewide populations, and would not contribute to the need for the species to become listed under the ESA. If this conclusion is reached, coordination with the Service may be appropriate.

The Bureau staff has reviewed potential actions associated with each program and the impacts to the individual species or their Critical habitats to determine the impact to the species or their Critical habitats if those actions were to occur within suitable habitat for those species. Table 7 below lists potential activities and associated effect determinations of each Bureau action on the individual species or habitat.

This BA will describe in detail those potential actions that may affect listed species or its Critical habitat. Other potential actions that have been determined to have no affect on a species or its Critical habitat will not be further discussed in detail. Projects and/or activities that have a No Effect determination (Table 7) have been found to not occur within species' habitat. In addition, projects and/or activities that will not impact (NI) candidate and Bureau sensitive species or their essential habitat will not be discussed. Programs that do not have actions located within the habitat of a listed species have been identified as having "No Effect" on that species or its Critical habitats.

The black-footed ferret population in the Shirley Basin is a nonessential experimental population, and all program activities are determined to have No Jeopardy (NJ) on this species. Because this is an experimental population, any activities associated with resource programs would not jeopardize this population.

Table 7. Biological Assessment on the Affects of Bureau Actions Within the RMPPA on Species Listed Under the ESA

Biological Assessment on the Affects of Bureau Management Actions Within the RMPPA on Species Listed Under the Endangered Species Act	Black-footed Ferret (general population)	Black-footed Ferret (Shirley Basin Unit)	Preble's Meadow Jumping Mouse (PMJ)	PMJ Critical Habitat	Canada Lynx	Bald Eagle	Western Yellow-billed Cuckoo	Wyoming Toad	Platte River Species Water Depletion	Colorado River Species Water Depletion	Blowout Penstemon	Colorado Butterfly Plant (CBP)	CBP Critical Habitat	Ute Ladies' tresses
Air Quality														
Collect meteorological and/or air quality data	NL-i	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Apply dust control measures	NL-i	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Cover conveyors at mine sites	NL-i	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Cultural														
Record cultural resources (including excavation)	NL-i	NJ	NL-i	NL-i	NL-d	NL-i	NI	NL-i	NE	NE	NL-i	NL-i	NL-i	NL-i
Inventory cultural resources	NL-i	NJ	NL-i	NL-I	NL-d	NL-i	NI	NL-i	NE	NE	NL-i	NL-i	NL-i	NL-i
Develop interpretive sites	NL-d	NJ	NL-d	NE	NL-d	NL-i	NI	NL-d	NE	NE	NL-d	NL-d	NL-d	NL-d
Use handtools, power tools, heavy machinery (surface disturbing)	NL-i	NJ	NL-d	NE	NL-i	NL-i	NI	NL-d	NE	NE	NL-d	NL-d	NL-d	NL-d
Stabilize deteriorating buildings/resources	NL-i	NJ	NL-d	NE	NL-i	NL-i	NI	NL-d	NE	NE	NL-d	NL-d	NL-d	NL-d
Fence cultural resources	NL-i	NJ	NL-d	NL-i	NE	NL-i	NI	NL-d	NE	NE	NL-d	NL-d	NL-i	NL-d
Temporary campsites	NL-d	NJ	NL-d	NL-d	NE	NL-d	NI	NE	NE	NE	NE	NE	NE	NE
Fire and Fuels Management														
Fire suppression	NL-d	NJ	NL-i	NL-i	NL-i	NL-i	NI	NL-d	LAA	LAA	NL-i	NL-i	NL-i	NL-i
Damage rehabilitation	NL-i	NJ	NL-i	NL-i	NL-i	NL-d	NI	NL-d	NE	NE	NL-i	NL-d	NL-d	NL-d
Prescribed burning	NL-i	NJ	NL-d	NL-d	NL-d	NL-i	NI	NL-d	LAA	LAA	NL-b	NE	NE	NE
Construct firelines	NL-d	NJ	NL-i	NL-i	NL-d	NL-i	NI	NL-i	LAA	LAA	NL-d	NL-i	NL-i	NL-i
Use off–road vehicles	NL-d	NJ	NL-i	NL-i	NL-d	NL-d	NI	NL-i	NE	NE	NL-d	NL-i	NL-i	NL-i
Use handtools and heavy equipment	NL-d	NJ	NL-d	NL-d	NL-d	NL-d	NI	NL-d	NE	NE	NL-i	NL-d	NL-d	NL-d
Use chemical fire suppression agents (ground-based)	NL-d	NJ	NE	NE	NL-i	NL-d	NI	NL-d	LAA	LAA	NL-i	NL-i	NL-i	NL-i
Fire retardant drops containing chemical dyes (aircraft dispersal)	NE	NJ	NE	NE	NL-i	NL-i	NI	NL-d	LAA	LAA	NL-i	NL-i	NL-i	NL-i

Biological Assessment on the Affects of Bureau Management Actions Within the RMPPA on Species Listed Under the Endangered Species Act	Black-footed Ferret (general population)	Black-footed Ferret (Shirley Basin Unit)	Preble's Meadow Jumping Mouse (PMJ)	PMJ Critical Habitat	Canada Lynx	Bald Eagle	Western Yellow-billed Cuckoo	Wyoming Toad	Platte River Species Water Depletion	Colorado River Species Water Depletion	Blowout Penstemon	Colorado Butterfly Plant (CBP)	CBP Critical Habitat	Ute Ladies' tresses
Forest Management														
Rehabilitations surveys	NL-d	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Timber harvesting	NL-d	NJ	NL-d	NL-d	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Artificial regeneration (planting harvested areas, including with new seedlings)	NL-d	NJ	NL-d	NL-d	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Fencing regenerated areas	NE	NJ	NE	NE	NE	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
Clearcuts (including stand replacement)	NL-d	NJ	NE	NE	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Selective cutting	NL-d	NJ	NE	NE	NL-b	NE	NI	NE	NE	NE	NE	NE	NE	NE
Slash disposal	NL-d	NJ	NE	NE	NL-b	NE	NI	NE	NE	NE	NE	NE	NE	NE
Site regeneration (natural)	NL-d	NJ	NE	NE	NL-b	NE	NI	NE	NE	NE	NE	NE	NE	NE
Precommercial thinning	NL-d	NJ	NE	NE	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Firewood, posts, poles, Christmas trees, wildings	NL-i	NJ	NL-i	NE	NL-i	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
Commercial thinning	NE	NJ	NE	NE	NL-b	NE	NI	NE	NE	NE	NE	NE	NE	NE
Skidder-type yarding	NE	NJ	NE	NE	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Logging operations	NE	NJ	NL-i	NE	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Cable yarding	NE	NJ	NL-d	NE	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Road and landing construction	NL-i	NJ	NL-i/d	NL-i/d	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Shearing	NE	NJ	NE	NE	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Install drain culverts, water bars, or ditches	NL-d	NJ	NL-d	NL-d	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Cut and remove diseased trees	NE	NJ	NE	NE	NL-b	NL-d	NI	NE	NE	NE	NE	NE	NE	NE
Slash lopped, scattered, roller chopped, or burned	NL-i	NJ	NL-d	NE	NL-b	NE	NI	NE	NE	NE	NE	NE	NE	NE
Helicopter logging	NE	NJ	NE	NE	NL-i	NL-d	NI	NE	NE	NE	NE	NE	NE	NE
Disease treatment sprayings	NL-d	NJ	NL-d	NL-d	NL-i	NL-d	NI	NE	NE	NE	NE	NE	NE	NE
Lands and Reality														
Establish withdrawals	NL-b	NJ	NL-b	NL-b	NL-b	NL-b	NI	NL-b	NE	NE	NL-b	NL-b	NL-b	NL-b

Biological Assessment on the Affects of Bureau Management Actions Within the RMPPA on Species Listed Under the Endangered Species Act	Black-footed Ferret (general population)	Black-footed Ferret (Shirley Basin Unit)	Preble's Meadow Jumping Mouse (PMJ)	PMJ Critical Habitat	Canada Lynx	Bald Eagle	Western Yellow-billed Cuckoo	Wyoming Toad	Platte River Species Water Depletion	Colorado River Species Water Depletion	Blowout Penstemon	Colorado Butterfly Plant (CBP)	CBP Critical Habitat	Ute Ladies' tresses
Acquire conservation easements	NL-b	NJ	NL-b	NL-b	NL-b	NL-b	NI	NL-b	NE	NE	NL-b	NL-b	NL-b	NL-b
Disposal or transfer of public lands through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or Recreation and Public Purposes (RPP), leases or patents	NL-d	NJ	NL-d	NL-d	NL-d	NL-d	MI	NL-d	LAA	LAA	NL-d	NL-d	NL-d	NL-d
ROW/lease: utility transportation corridors	NL-d	NJ	NL-d	NL-d	NL-d	LAA	MI	NL-d	LAA	LAA	NL-d	NL-d	NL-d	NL-d
ROW: power lines	NL-d	NJ	NL-d	NL-d	NL-d	LAA	NI	NL-i	NE	NE	NL-i	NL-i	NL-i	NL-i
Lease: communication sites	NL-d	NJ	NE	NE	NL-d	NE	NI	NE	NE	NE	NE	NE	NE	NE
ROW: pipelines	NL-d	NJ	NL-d	NL-d	NL-d	NL-i	NI	NL-i	LAA	LAA	NL-d	NL-i	NL-i	NL-i
ROW: ditches and canals	NL-d	NJ	NL-d	NL-d	NL-d	NL-i	NI	NL-d	NE	LAA	NE	NE	NE	NL-d
ROW: roads	NL-d	NJ	LAA	LAA	NL-d	LAA	NI	NL-d	LAA	LAA	NL-d	NL-d	NL-d	NL-d
ROW: well pads	NL-d	NJ	NL-d	NL-d	NL-d	NL-d	NI	NL-i	LAA	LAA	NL-d	NL-i	NL-i	NL-i
ROW: reservoirs	NL-d	NJ	LAA	LAA	NL-d	NL-b	NI	NL-d	LAA	LAA	NE	NL-d	NL-d	NL-d
ROW: buried telephone and fiber optic lines	NL-d	NJ	NL-d	NL-d	NL-i	NL-i	NI	NL-i	NE	NE	NL-d	NL-i	NL-i	NL-i
ROW: wind power generation farms and facilities	NL-d	NJ	NL-d	NL-d	NL-i	LAA	NI	NL-i	NE	NE	NE	NL-i	NL-i	NL-i
ROW: Compressor stations and other facilities	NL-d	NJ	NL-d	NL-d	NL-i	NL-d	NI	NL-i	NE	NE	NE	NL-i	NL-i	NL-i
Temporary use permits (i.e., staging areas, storage, permit of existing roads)	NL-d	NJ	NL-d	NL-d	NL-d	LAA	NI	NL-d	LAA	LAA	NL-d	NL-d	NL-d	NL-d
Road closures/rehabilitation	NL-b	NJ	NL-b	NL-b	NL-b	NL-b	NI	NL-b	NE	NE	NL-b	NL-b	NL-b	NL-b
Designate, cancel, or change stock trail driveways	NL-i	NJ	NL-i	NL-i	NL-i	NE	NI	NL-i	NE	NE	NL-i	NL-i	NL-i	NL-i
Livestock Management														
Livestock conversions	NL-i	NJ	NL-i	NL-d	NE	NL-d	NI	NL-i	NE	NE	LAA	LAA	LAA	LAA

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Livestock grazing authorization (adjust season of use, distribution, class, and numbers of livestock)	NL-i	NJ	NL-d	NL-d	NE	NL-d	NI	NL-d	NE	NE	LAA	LAA	LAA	LAA
Construct exclosures	NL-i	NJ	NL-d	NL-i	NE	NL-i	NI	NL-d	NE	NE	NL-d	NL-d	NL-i	NL-d
Design and implement grazing systems	NL-i	NJ	NL-d	NL-d	NE	NL-i	NI	NL-d	NE	NE	LAA	LAA	LAA	LAA
Construct, maintain, and modify fences	NL-i	NJ	NL-d	NL-d	NE	NL-i	NI	NL-d	NE	NE	NL-i	NL-i	NL-i	NL-i
Develop water facilities (catchments, reservoirs, springs, pipelines, and wells)	NL-d	NJ	LAA	LAA	NL-i	NL-i	MI	NL-d	LAA	LAA	NL-i	NL-d	NL-d	NL-d
Supplemental feeding authorization	NL-i	NJ	NE	NE	NE	NL-i	NI	NL-i	NE	NE	NE	NE	NE	NE
Minerals														
Apply dust control measures	NE	NJ	NL-i	NL-i	NE	NE	NI	NE	LAA	LAA	NL-i	NL-d	NL-d	NL-d
Restrict flaring of natural gas	NE	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Control/limit emissions	NE	NJ	NE	NE	NL-i	NE	NI	NE	NE	NE	NE	NE	NE	NE
Construction and reclamation of well pads, access roads, and reserve pits	NL-d	NJ	NL-d	NL-d	NL-i	NL-i	NI	NL-i	LAA	LAA	NE	NL-d	NL-d	NL-d
Reservoirs associated with water disposal	NL-d	NJ	NL-d	NL-d	NL-b	NE	NI	NL-b	NE	NE	NE	NL-d	NL-d	NL-d
Compressor stations, product enhancement, and disposal facilities	NL-d	NJ	NL-d	NL-d	NL-d	NL-d	NI	NL-i	NE	NE	NE	NL-d	NL-d	NL-d
Pipelines associated with leases or units	NL-i	NJ	NL-i	NL-i	NL-d	NE	NI	NE	LAA	LAA	NL-d	NL-d	NL-d	NL-d
Power lines associated with leases or units	NL-i	NJ	NL-i	NL-i	NL-d	LAA	NI	NE	NE	NE	NE	NL-d	NL-d	NL-d
Wind power associated with leases or units	NL-i	NJ	NE	NE	NL-d	LAA	NI	NE	NE	NE	NE	NE	NE	NE

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Coal development	NE	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Locatable mineral exploration and development (e.g., gold, silver, cobalt, etc.)	NL-i	NJ	NL-d	NL-d	NL-i	NL-i	NI	NE	NE	NE	NE	NL-d	NL-d	NL-d
Mineral material disposals (sand and gravel, decorative stone, aggregate)	NE	NJ	NL-i	NL-i	NE	NL-i	NI	NE	LAA	LAA	NE	NL-d	NL-d	NL-d
Geophysical exploration	NL-i	NJ	NL-i	NL-i	NE	NL-i	NI	NE	NE	NE	NL-i	NL-d	NL-d	NL-d
Off-Highway Vehicle Use														
Designate and implement closed area for OHV use	NL-d	NJ	NL-d	NL-d	NL-d	NL-i	NI	NL-d	NE	NE	NL-d	NL-d	NL-d	NL-d
Designate and implement limited areas for OHV use	NL-d	NJ	NL-d	NL-d	NL-d	NL-i	NI	NL-d	NE	NE	NL-d	NL-d	NL-d	NL-d
Designate and implement open areas for OHV use	NL-d	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NL-d	NE	NE	NE
Post signs	NE	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Allow use of motorized over-the-snow vehicles	NL-d	NJ	NE	NE	NL-d	NL-i	NI	NE	NE	NE	NE	NL-d	NL-d	NL-d
Paleontology														
Surface disturbing activities to collect specimens (e.g., handtools, power tools, heavy machinery)	NE	NJ	NL-i	NL-i	NL-i	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
Allow collection of invertebrate fossils	NE	NJ	NL-i	NL-i	NL-i	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
Inventory paleontological resources	NE	NJ	NL-i	NL-i	NL-i	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
Develop interpretive sites	NE	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Stabilize erosion (e.g., bury exposed site)	NE	NJ	NL-i	NL-i	NL-i	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
Recreation Resources														
Restrict recreational use	NL-b	NJ	NL-b	NL-b	NL-b	NL-b	NI	NL-b	NE	NE	NL-b	NL-b	NL-b	NL-b

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Permit competitive recreation events	NL-d	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NL-d	NE	NE	NE
Develop recreational trails	NE	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Construct recreation sites	NE	NJ	NE	NE	NE	NL-d	NI	NE	NE	NE	NE	NE	NE	NE
Maintain developed and undeveloped recreation sites	NE	NJ	NE	NE	NE	NL-d	NI	NE	NE	NE	NE	NE	NE	NE
Place boundary signs and interpretive markers	NE	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NL-i	NE	NE	NE
Commercial recreation uses	NL-d	NJ	NL-d	NL-d	NL-i	NL-d	NI	NL-d	NE	NE	NE	NL-d	NL-d	NL-d
Develop public water sources for recreation facilities	NL-i	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
SMA														
Adobe Town WSA—continue present management	NL-b	NJ	NE	NE	NL-b	NE	NI	NE	NE	NE	NE	NE	NE	NE
Prospect Mountain WSA	NE	NJ	NE	NE	NL-b	NL-b	NI	NE	NE	NE	NE	NE	NE	NL-b
Encampment River Canyon WSA—continue present management	NE	NJ	NE	NE	NL-b	NL-b	NI	NE	NE	NE	NE	NE	NE	NL-b
Ferris Mountain WSA—continue present management	NE	NJ	NE	NE	NL-b	NL-b	NI	NE	NE	NE	NE	NE	NE	NL-b
Bennett Mountains WSA—continue present management	NE	NJ	NE	NE	NL-b	NL-b	NI	NE	NE	NE	NE	NE	NE	NL-b
Sandhills ACEC/proposed JO Ranch expansion	NL-b	NJ	NE	NE	NL-b	NL-b	NI	NE	NE	NE	NE	NE	NE	NL-b
Jep Canyon Wildlife Habitat Management Area	NL-b	NJ	NE	NE	NL-b	NE	NI	NE	NE	NE	NE	NE	NE	NL-b
Shamrock Hills Wildlife Habitat Management Area	NL-b	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NL-b
Laramie Plains Lakes Wildlife Habitat Management Area	NE	NJ	NE	NE	NE	NE	NI	NL-b	NE	NE	NE	NL-b	NL-b	NL-b
Blowout Penstemon ACEC	NE	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NL-b	NE	NE	NL-b
North Platte River SRMA	NE	NJ	NE	NE	NE	NL-b	NI	NE	NE	NE	NE	NE	NE	NL-b

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Transportation and Access Management														
Acquire access easements	NL-d	NJ	NL-d	NL-d	NL-i	NL-i	NI	NL-d	NE	NE	NL-d	NL-d	NL-d	NL-d
Vegetation (including noxious and invasive weed control)														
Implement planting and seeding	NL-i	NJ	NL-b	NL-b	NL-i	NL-b	NI	NE	NE	NE	NL-d	NL-d	NL-d	NL-d
Use biological controls, including species-specific insects and livestock grazing	NL-i	NJ	NL-d	NL-d	NE	NL-i	NI	NL-d	NE	NE	NL-d	NL-i	NL-i	NL-i
Use light mechanical control, including cutting and thinning with handtools	NL-i	NJ	NE	NE	NL-i	NL-i	NI	NL-i	NE	NE	NE	NL-d	NL-d	NL-d
Use heavy mechanical control, including brushbeating, cutting, and thinning with machinery	NL-d	NJ	NE	NE	NL-i	NL-i	NI	NL-d	NE	NE	NE	NE	NE	NE
Use chemical control (including aerial spraying)	NL-i	NJ	NE	NE	NL-i	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
VRM														
Require facilities to blend with the natural environment	NE	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Water Quality, Watershed and Soils Management														
Allow for surface discharge of produced water	NE	NJ	NL-i	NL-i	NE	NL-i	NI	NE	NE	NE	NE	NL-i	NL-i	NL-i
Restrict surface disturbance near water resources and sensitive soils	NE	NJ	NL-b	NL-b	NL-b	NL-b	NI	NL-b	NE	NE	NE	NL-b	NL-b	NL-b
Limit surface disturbance and prohibit new permanent structures in the Encampment River watershed	NE	NJ	NE	NE	NL-b	NL-b	NI	NE	NE	NE	NE	NE	NE	NL-b
Close areas, including roads, where accelerated erosion is occurring	NL-b	NJ	NL-b	NL-b	NL-b	NL-b	NI	NL-b	NE	NE	NL-b	NL-b	NL-b	NL-b

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Install stream crossings for appropriate sediment and flow passage (culverts, bridges)	NE	NJ	NL-d	NL-d	NL-i	NL-b	NI	NL-i	NE	NE	NE	NL-d	NL-d	NL-d
Develop riparian/wetland exclosures	NE	NJ	NL-d	NL-i	NE	NL-i	NI	NL-d	NE	NE	NE	NL-d	NL-i	NL-d
Channel restoration using heavy equipment	NE	NJ	NL-i	NL-i	NL-i	NL-b	MI	NL-d	LAA	LAA	NE	NL-d	NL-d	NL-d
Cutting, planting, and seeding to restore function in riparian/wetland areas	NE	NJ	NL-b	NL-b	NL-i	NL-b	NI	NE	NE	NE	NE	NL-d	NL-d	NL-d
Wildlife and Fish														
Predator control (cooperation with APHIS)	NL-d	NJ	NE	NE	NL-d	NL-d	NI	NE	NE	NE	NE	NE	NE	NE
Construction of artificial structures for raptors	NL-d	NJ	NE	NE	NE	NL-b	NI	NE	NE	NE	NE	NE	NE	NE
Guzzler development	NL-i	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Modify fences	NL-i	NJ	NL-i	NL-i	NE	NL-i	NI	NE	NE	NE	NL-d	NL-d	NL-i	NL-d
Develop islands	NE	NJ	NE	NE	NE	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
Road closure (permanent, seasonal)	NL-b	NJ	NL-b	NL-b	NL-b	NE	NI	NL-b	NE	NE	NL-b	NL-b	NL-b	NL-b
Construct exclosures	NL-i	NJ	NL-d	NL-i	NE	NL-i	NI	NL-d	NE	NE	NL-d	NL-d	NL-i	NL-d
Construct reservoirs and pits	NL-i	NJ	NL-d	NE	NL-b	NL-i	NI	NL-d	LAA	LAA	NE	NL-d	NL-d	NL-d
Chemically remove non-native fish species	NE	NJ	NL-i	NL-i	NE	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
Remove or replace barriers to fish passage (e.g., culverts, instream structures)	NE	NJ	NL-d	NL-b	NE	NL-i	NI	NE	NE	NE	NE	NE	NE	NE
Wild Horse Management														
Construction of short-term temporary facilities (e.g., traps and holding facilities)	NE	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE
Construction of long-term	NL-i	NJ	NE	NE	NE	NE	NI	NE	NE	NE	NE	NE	NE	NE

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permanent facilities (e.g. boundary fences and water development)														
Gatherings using helicopters and riders	NE	NJ	NE	NE	NE	NL-i	NI	NE	NE	NE	NE	NE	NE	NE

Threatened, Endangered, and Proposed Species:

NE = No Effect LAA = May Affect, Likely to Adversely Affect NJ = No Jeopardy JP = Jeopardy
NLAA = Not Likely to Adversely Affect (NL-), the following acronyms apply:
NL-b = due to beneficial effects
NL-d = due to discountable effect
NL-i = insignificant effects

Candidate Species:

NI = No Impact
MI = May Impact, but not likely to contribute to the need for federal listing

Analysis of Management Actions and Effects Determinations

Manpower and budgetary restrictions, and changes in biological and technological information, may affect the extent to which RMPPA may engage in the following program activities. Therefore the likelihood of these potentially authorized activities to occur is largely undeterminable at this scale over the life of the plan. Site-specific analysis and determinations, and Section 7 consultations, where appropriate, will be conducted on a case-by-case basis throughout the life of the plan

The Bureau programs within the RMPPA occur in a diversity of habitat types that occur throughout the RMPPA, and site-specific projects are analyzed at the project level to determine if habitat exists for all T&E and Special Status Species identified within the RMPPA. If habitat is not present for a particular T&E and Special Status Species, then a No Effect determination is made at that level. In addition, analysis completed at the site-specific project level includes determinations of insignificant, discountable, and beneficial affects for each T&E and Special Status Species that may occur or have the potential to occur, or that have habitat present within the project area.

A T&E analysis worksheet (Determination of Need for T&E Conference/Consultation and Biological Evaluation on Other Wildlife Species) is completed for every surface disturbing or other disruptive activity that may occur on Bureau-administered public lands. These forms are modified periodically to comply with changes in the ESA. The forms are kept on file at the Bureau field office in Rawlins, WY, and those forms associated with projects that require conferencing and/or consultation are forwarded to the Service in Cheyenne, WY.

General Effects Determinations for Each Species and Each Bureau-Administered Program

Black-Footed Ferret

Threats from Human Activity

Past animal damage control programs probably have had the greatest impact on ferret mortality. From the 1920s until the mid-1970s, predator control through trapping and poisoning resulted in significant black-footed ferret mortality (67 percent of positive ferret reports). Secondary poisoning of ferrets is also known to have occurred from rodenticides used in prairie dog eradication programs. Widespread poisoning of prairie dogs and conversion of their habitat to agricultural cultivation drastically reduced prairie dog abundance and distribution in the last century. This severe decline of prairie dogs resulted in a concomitant and near-fatal decline in ferrets.

Varmint hunters seek out prairie dog colonies for target shooting. Because few people can distinguish between a ferret, a burrowing owl, or a prairie dog peering over a prairie dog mound, it is assumed that target-shooters have killed some black-footed ferrets accidentally.

Land use activities such as ROWs, energy developments, use permits, urban expansion, mineral extraction, and range improvement projects can reduce or fragment ferret habitat, and therefore require inventory and clearances. Habitat losses have been minimized through coordination and management prescriptions requiring surveys and avoidance of potential black-footed ferret habitat.

Effects of the Proposed RFO RMP

Black-footed ferrets have the potential to exist within the RMPPA at locations other than the Shirley Mountain experimental unit. Black-footed ferrets are known to be very closely associated with prairie dogs, and their long-term welfare is dependent on healthy prairie dog populations and colony complexes. The restrictions applied to prairie dog colonies will provide a significant measure of protection to black-footed ferrets.

These protections include stipulations on surface occupancy within and near prairie dog colonies, seasonal restrictions, and range improvement restrictions, and others.

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for black-footed ferret:

- Wildlife and Fish—LAA
- Air Quality; Cultural; Fire and Fuels Management; Forest Management; Lands and Realty; Livestock Management; Minerals; OHV Use; Recreation Resources; SMAs; Transportation and Access Management; Vegetation; Water Quality, Watershed and Soils Management; Wild Horse Management—NL-i
- Paleontology and VRM—NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Shirley Basin Habitat

The Shirley Basin nonessential experimental population was established under the "Cooperative Management Plan for Black-footed Ferrets—Shirley Basin/Medicine Bow, Wyoming" August 21, 1991.

Preble's Meadow Jumping Mouse

Threats from Human Activity

Loss of habitat, especially riparian, is the major impact to Preble's. Urban and suburban developments in and adjacent to riparian areas are the primary threats (Pague and Grunau 2000). Such development directly eliminates habitat. It can also reduce the quality of remaining habitat by increasing disturbance, reducing water quality, channelizing streams, and increasing densities of exotic predators such as Norway rats, domestic dogs, and cats. Densities of human-commensal predators (e.g., skunk, raccoon, red fox) may also increase in response to local elimination of larger carnivores (e.g., mountain lion, coyote, black bear).

Overgrazing of streambanks also reduces habitat quality (Brown 1967, Clark and Stromberg 1987, Compton and Hugie 1993), as does conversion of wetlands to croplands. The effects of noxious and invasive weeds on *Zapus* have not been studied, but if such noxious and invasive weeds replace important seed producers, they could reduce forage quantity. Pesticides may directly contaminate mice and could also reduce their insect prey base.

Effects of the Proposed RFO RMP

Mitigation actions and conservation measures are discussed in the "Analysis of Management Actions and Effects Determinations" section of this BA.

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for Preble's jumping meadow mouse:

- Livestock Management and Soils Management—LAA
- Cultural, Forest Management, Minerals, and Paleontology—NL-i
- OHV Use, Recreation Resources, Transportation and Access Management, Vegetation, Wildlife and Fish—NL-d
- Air Quality, SMAs, VRM, Wild Horse Management—NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Preble's Meadow Jumping Mouse Critical Habitat

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for Preble's meadow jumping mouse Critical habitat:

- Livestock Management —LAA
- Cultural; Forest Management; Minerals; Paleontology; Wildlife and Fish; and Water Quality, Watershed and Soils Management—NL-i
- OHV Use, Recreation Resources, Vegetation, and Transportation and Access Management—NL-d
- Air Quality, VRM, Wild Horse Management, and SMAs—NE

For a further clarification on these determinations refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Canada lynx

Threats from Human Activity

The Canada Lynx BA cites the following risk factors (Ruediger et al. 2000) for the Northern Rockies geographic area:

- Timber Management—harvest and precommercial thinning that reduce denning or foraging habitat or that converts habitat to less desirable tree species
- Wildland Fire Management—where exclusion changes the vegetation mosaic maintained by natural disturbance processes
- Livestock Management—where forage for lynx prey is reduced
- Recreation—where roads and winter recreation trails facilitate access to historical lynx habitat by competitors
- Incidental trapping and shooting
- Predation
- Highways—vehicle strikes or obstructions to lynx movements
- Development of private lands.

Factors affecting lynx habitat include human alteration of the distribution and abundance, species composition, successional stages, connectivity of forests, and the resulting changes in the forest's capacity to sustain lynx populations. People change forests through timber harvest, fire suppression, and conversion of forestlands to agriculture. Forest fragmentation may eventually become severe enough to isolate habitat into small patches, thereby reducing the viability of wildlife that are dependent on larger

areas of forest habitat (Levities and Harrison 1989). In all regions of the lynx range in the contiguous United States, timber harvest and its related activities are a predominant land use affecting lynx habitat. Timber harvest and associated forest management can be benign, beneficial, or detrimental to lynx depending on harvest methods, spatial and temporal specifications, and the inherent vegetation potential of the site.

One of the primary reasons for the listing of the lynx was based on the conclusion that the low numbers in the contiguous United States were the residual effect of overtrapping that was believed to have occurred in the 1970s and 1980s in response to unprecedented high pelt prices. Human-induced mortality was generally believed to be the most significant source of lynx mortality (Ward and Krebs 1985). Trapping mortality was considered to be entirely additive (i.e., in addition to natural mortality) rather than compensatory (taking the place of natural mortality) (Brand and Keith 1979). However, Canadian researchers determined that natural mortality during the declining phase of the lynx cycle is high; therefore trapping mortality during some portions of the cyclic decline may compensate for natural mortality (Poole 1994, Slough and Mowat 1996). Thus trapping of lynx can be both additive and compensatory, depending on when it occurs in the cycle.

Lynx movements may be negatively influenced by high traffic volume on roads that bisect suitable lynx habitat. Given the distances and locations where known lynx within the southern boreal forest have moved, lynx successfully cross many types of roads, including unpaved forest roads, secondary paved roads, as well as interstate highways (Mech 1980, Smith 1984, Brainerd 1985, Squires and Laurion 2000). Highways with high volumes of traffic and associated suburban developments inhibit lynx home range movement and dispersal, and may contribute to loss of habitat connectivity. However no information currently exists to determine the level at which traffic volume or roadway design may influence lynx movements or create an impediment to movement. Roads do not appear to be a significant direct cause of lynx mortality (Staples 1995, Ruggiero et al. 2000).

Disease and predation are not known to be factors threatening lynx.

Evidence indicates that lynx tolerate some level of human disturbance (Staples 1995, Aubry et al. 1999, Mowat et al. 2000). For most areas of the contiguous United States, there is no evidence that human-caused factors have significantly reduced the ability of lynx to disperse or have resulted in the loss of genetic interchange. Likewise, no evidence exists that human presence displaces lynx. Lynx have been documented using some types of roads for hunting and travel (Parker 1981, Koehler and Brittell 1990, Koehler and Aubry 1994). No information is available demonstrating that forest roads negatively impact resident lynx populations. Lynx are taken during legal trapping and hunting for other species, such as wolverine and bobcat (McKay 1991, Staples 1995).

Coyote, bobcat, and mountain lion are hypothesized to be potential lynx competitors (Brocke 1982, McCord and Cardoza 1982, Parker et al. 1983, Quinn and Parker 1987, Aubry et al. 2000, Buskirk et al. 2000, Ruggiero et al. 2000). In Wyoming the ranges of these species all overlap. Lynx are highly evolved for hunting in deep snow: they have a morphological advantage because they are able to walk on snow rather than sink into it as do these other species with higher foot loads (Murray and Boutin 1991, Buskirk et al. 2000). Traditionally, where these species' ranges overlap with that of lynx, snow conditions exclude them from the winter habitats occupied by lynx (McCord and Cardoza 1982, Parker et al. 1983, Buskirk et al. 2000). However, snow trails packed by humans (i.e., by snowmobiles, cross-country skiing) or snowplowing have facilitated the movement of potential lynx competitors into the deep snow habitats of the lynx (USFS and BLM 1999). Yet there is a lack of evidence that competition with coyotes, mountain lions, or bobcats is negatively affecting lynx at a population-level scale. Direct lynx mortality from mountain lions is reported by Squires and Laurion (2000). Other potential predators

include the gray wolf (*Canis lupus*) and wolverine (*Gulo gulo*) (Poole 1994, Slough and Mowat 1996, O'Donoghue et al. 1997, Apps 2000, Squires and Laurion 2000).

The Service concluded in the Federal Register Canada lynx listing document that the single factor threatening the contiguous United States Distinct Population Segments of lynx is the inadequacy of existing regulatory mechanisms, specifically the lack of guidance for conservation of lynx in National Forest land and resource plans and Bureau land use plans. Until plans adequately address risks such as those identified in the LCAS (Ruediger et al. 2000), there is a significant threat to the contiguous DPS of lynx.

Effects of the Proposed RFO RMP

Because the lynx does not have a significant population within the RMPPA and is noted as using the riparian zones only as a migration corridor or traverse route from one forested area to another, there are no significant effects on the lynx from Bureau management actions within the RMPPA.

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for Canada lynx:

- Cultural; Fire and Fuels Management; Lands and Realty; Minerals; Paleontology; Recreation Resources; Transportation and Access Management; Vegetation; and Water Quality, Watershed and Soils Management—NL-i
- Forest Management, OHV Use, and Wildlife and Fish—NL-d
- Livestock Management and SMAs—NL-b
- Air Quality, VRM, and Wild Horse Management —NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Bald Eagle

Threats from Human Activity

The accelerated decline in numbers of bald eagle species since World War II has been attributed to several factors. Some of the factors contributing to the decline of this species are unauthorized poison baits on public lands, shooting, electrocution, and chemicals in the environment.

Effects of the Proposed RFO RMP

Implementation of the RFO RMP would not change any potential effects on the bald eagle that may result from current nonfederal actions.

The RMPPA includes descriptions of each management prescription applied within the RMPPA. The following briefly summarizes the activities and any specific mitigation measures associated with each management prescription. The Wyoming BLM Mitigation Guidelines for Surface Disturbing and Disruptive Activities will be applied to all surface disturbing or other disruptive activities. As described previously, these guidelines include timing limitations and restrictions on surface occupancy that will minimize potential effects to bald eagles and their habitats. Refer to the Bald Eagle BA for a complete explanation of each prescription.

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for bald eagle:

- Forest Management, Lands and Realty, Minerals, and Wildlife and Fish—LAA
- Cultural; Fire and Fuels Management; Livestock Management; Paleontology; SMAs; Vegetation; Water Quality, Watershed and Soils Management; Wild Horse Management—NL-i
- Recreation Resources, OHV Use, and Transportation and Access Management—NL-d
- Air Quality and VRM—NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Western Yellow-billed Cuckoo

Threats from Human Activity

Loss of habitat is probably the greatest threat facing the cuckoo. Dams and river flow management, overgrazing, land conversions associated with agriculture, and infestations of exotic plants have severely impacted riparian habitat throughout the West, including Wyoming (Laymon 1987; Hughes 1999; UDSI FWS 2000, 2001).

Effects of the Proposed RFO RMP

Possible adverse effects to the Western population of the yellow-billed cuckoo (cuckoo) could occur from activities such as grazing, water depletions, and/or diversions associated with oil and gas or livestock water development, and noxious and invasive weed invasion from grazing and surface disturbing activity. Grazing and surface disturbing activities could result in soil compaction and loss of vegetative cover and therefore reduced infiltration and increased runoff and sedimentation of surface waters. Promotion of invasive plant species also would occur with grazing and surface disturbing activities. Other potential, adverse impacts from livestock management activities could include channel destabilization and nutrient loading of surface waters. Water depletions and diversions would also occur in potential habitat; however, because potential habitat for the cuckoo in the RMPPA is within the Little Snake River drainage, depletions and diversions would be minimal and therefore would not significantly adversely affect the cuckoo (see the following section for an indepth discussion on depletions).

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for Western yellow-billed cuckoo:

- Lands and Realty; Livestock Management; and Water Quality, Watershed and Soils Management —MI
- Air Quality, Cultural, Fire and Fuels Management, Forest Management, Minerals, OHV Use, Paleontology, Recreation Resources, SMAs, Transportation and Access Management, Vegetation, VRM, Wildlife and Fish, and Wild Horse Management—NI

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Wyoming Toad

Threats from Human Activity

Loss of habitat is probably the greatest threat facing the Wyoming Toad. Dams and river flow management, overgrazing, land conversions associated with agriculture, and infestations of exotic plants have severely impacted riparian habitat throughout the West, including Wyoming (Laymon 1987; Hughes 1999; UDSI FWS 2000, 2001).

Effects of the Proposed RFO RMP

Mitigation actions and conservation measures are discussed in the "Analysis of Management Actions and Effects Determinations" section of this BA.

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for Wyoming toad:

- Cultural; Fire and Fuels Management; Lands and Realty; Livestock Management; Minerals; Vegetation; Wildlife and Fish; Transportation and Access Management; and Water Quality, Watershed and Soils Management —NL-i
- OHV Use and Recreation Resources —NL-d
- SMAs—NL-b
- Air Quality, Forest Management, Paleontology, VRM, and Wild Horse Management —NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Platte River Species Water Depletions

Threats from Human Activity

Threats to the Platte River Species will be identified under species listed below.

Effects of the Proposed RFO RMP

Activities that may occur on Bureau lands that are likely to affect these species include water depletions from the following programs: fire and fuels management, lands and realty management, livestock management, minerals management, wildlife and fish management, and watershed management. However, these actions will be subject to review to prevent loss of their habitat.

Determination: Under the RFO RMP, it is determined that the following resource programs have the potential to cause water depletions to the Platte River system:

- Fire and Fuels Management; Lands and Realty; Livestock Management; Minerals; Water Quality, Watershed and Soils Management; and Wildlife and Fish—LAA
- Air Quality, Cultural, Forest Management, OHV Use, Paleontology, Recreation Resources, SMAs, Transportation and Access Management, Vegetation, VRM, Wild Horse Management—NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Whooping Crane and Critical Habitat

Threats from Human Activity

Primary threats due to human activities include draining wetland habitats, coastline development, and human activity near breeding and nesting sites.

Effects of the Proposed Rawlins Field Office RMP

Activities within the RFO area that result in a water depletion to the Platte River system will have a negative affect on the whooping crane and its Critical habitat downstream. Implementation of the RFO RMP is likely to adversely affect the whooping crane and is likely to adversely affect designated Critical habitat for the Whooping Crane.

Eskimo Curlew

Threats from Human Activity

The Eskimo curlew appears near the brink of extinction. Any activity that disturbs migratory habitats (including wet meadows along the central Platte River in Nebraska) is detrimental to the persistence of this species.

Effects of the Proposed RFO RMP

Activities within the RMPPA that result in a water depletion to the Platte River system will have a negative affect on the Eskimo curlew downstream. Implementation of the RFO RMP is likely to adversely affect the Eskimo curlew.

Piping Plover and Critical Habitat

Threats from Human Activity

Flood abatement activities, such as water diversions that permit shoreline vegetation to flourish, and human activity in general, threaten piping plover habitats and populations. Alterations of water flow change the structure of sandbars preferred for nesting (though the birds nest on sandy shores as well), and irregular flows may flood nests, or leave the sandbar connected to the shore and more vulnerable to predation.

Effects of the Proposed RFO RMP

Activities within the RMPPA that result in a water depletion to the Platte River system will have a negative affect on the piping plover and its Critical habitat downstream. Implementation of the RFO RMP is likely to adversely affect the piping plover and is likely to adversely affect designated Critical habitat for the piping plover.

Interior Least Tern

Threats from Human Activity

Loss of gravel sand bars along rivers due to flow regulation threatens least tern populations. In addition human disturbance in nesting areas negatively affects nesting success.

Effects of the Proposed RFO RMP

Activities within the RMPPA that result in a water depletion to the Platte River system will have a negative affect on the least tern downstream. Implementation of the RFO RMP is likely to adversely affect the interior least tern.

Pallid Sturgeon

Threats from Human Activity

Human activities such as recreation (e.g., fishing) and industrial and water development projects can adversely affect the viability of the pallid sturgeon. Recreational activities such as fishing can cause unintended mortality to individual fish because of induced stress experienced during capture and release. In addition industrial and water development projects can degrade water quality conducive to supporting pallid sturgeon life stages. Moreover, these projects and activities have drastically fragmented pallid sturgeon habitats and populations, and they have substantially altered the habitat conditions that are preferred by the pallid sturgeon.

Effects of the Proposed RFO RMP

Activities within the RMPPA that result in a water depletion to the Platte River system will have a negative affect on the pallid sturgeon downstream. Implementation of the RFO RMP is likely to adversely affect the Pallid sturgeon.

Western Prairie Fringed Orchid

Threats from Human Activity

The major factor contributing to the decline of the WPFO is the conversion of native prairie to croplands.

Effects of the Proposed RFO RMP

Activities within the RMPPA that result in a water depletion to the Platte River system will have a negative affect on the WPFO downstream. Implementation of the RFO RMP is likely to adversely affect the WPFO.

Colorado River Species Water Depletions

Threats from Human Activity

Threats to the Colorado River species will be identified under species listed below.

Effects of the Proposed RFO RMP

Activities that may occur on Bureau lands that are likely to affect Colorado River species include water depletions from the following programs: fire and fuels management, lands and realty management, livestock management, minerals management, wildlife and fish management, and watershed management. However, these actions will be subject to review to prevent loss of their habitat.

Determination: Under the RFO RMP, it is determined that the following resource programs have the potential to cause water depletions to the Colorado River system:

- Fire and Fuels Management; Lands and Realty; Livestock Management; Minerals; Water Quality, Watershed and Soils Management; and Wildlife and Fish—LAA
- Air Quality, Cultural, Forest Management, OHV Use, Paleontology, Recreation Resources, SMAs, Transportation and Access Management, Vegetation, VRM, and Wild Horse Management—NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Colorado Pikeminnow and Critical Habitat

Threats from Human Activity

Colorado pikeminnow populations have been dramatically reduced throughout their historic range because of past and present human activities. Pervasive threats to this species are due to habitat alterations resulting from water development and diversions. However, non-native fish introductions are the most pressing impediment to the recovery of this species; predatory non-native fishes profoundly affect recruitment by consuming juveniles (Minckley et al. 2003). Recovery efforts, however, are expanding the abundance and distribution of this species where the effects of habitat fragmentation and habitat alteration can be directly addressed.

Effects of the Proposed RFO RMP

Activities within the RMPPA that result in a water depletion to the Colorado River system will have a negative affect on the Colorado pikeminnow and its Critical habitat downstream. Implementation of the RFO RMP is likely to adversely affect the Colorado pikeminnow and is likely to adversely affect designated Critical habitat for the Colorado pikeminnow.

Razorback Sucker and Critical Habitat

Threats from Human Activity

The abundance and distribution of the razorback sucker has been dramatically reduced because of water developments, such as dams and water diversions. In addition the introduction of non-native trout into the historical habitats of the razorback sucker has almost eliminated their recruitment and survival (Minckley et al. 2003). Incidental catch by recreational anglers may pose a threat because of stress-caused direct and delayed mortality.

Effects of the Proposed RFO RMP

Activities within the RMPPA that result in a water depletion to the Colorado River system will have a negative affect on the razorback sucker and its Critical habitat downstream. Implementation of the RFO RMP is likely to adversely affect the razorback sucker and is likely to adversely affect designated Critical habitat for the razorback sucker.

Bonytail and Critical Habitat

Threats from Human Activity

The bonytail is the most imperiled fish among the federally listed fish species native to the Colorado River drainage. Water development projects and activities, such as dams and water diversions, have

caused a nearly catastrophic decline in bonytail populations and in preferred habitats. Further, the introductions of non-native trout in the Colorado River drainage have contributed to the decline in bonytail abundance and distribution as a result of predation.

Effects of the Proposed RFO RMP

Activities within the RMPPA that result in a water depletion to the Colorado River system will have a negative affect on this species and its Critical habitat downstream. Implementation of the RFO RMP is likely to adversely affect the bonytail and is likely to adversely affect designated Critical habitat for the bonytail.

Humpback Chub and Critical Habitat

Threats from Human Activity

The humpback chub is not as abundant as it was historically. Water development and introduced trout have affected the abundance and distribution of the humpback chub. Dams have altered the timing, duration, and magnitude of annual flows that provided suitable and preferable habitats for the humpback chub. Further, non-native trout have affected humpback chub abundance as a result of predation.

Effects of the Proposed RFO RMP

Activities within the RMPPA that result in a water depletion to the Colorado River system will have a negative affect on the humpback chub and its Critical habitat downstream. Implementation of the RFO RMP is likely to adversely affect the humpback chub and is likely to adversely affect designated Critical habitat for the humpback chub.

Blowout Penstemon

Threats from Human Activity

No long-term trend data is available on the Wyoming population of blowout penstemon. The cause of the sharp decline in the Nebraska population is also unknown, although wildland fire control, severe drought, improvements in range management, leveling of sand dunes, and outbreaks of pyralid moths have all been identified as causes (Fertig 2000).

Some evidence indicated drought might be the primary threat to the existence of the species. In years with lower-than-normal precipitation or in the end period of intensive grazing, livestock have been observed to closely graze almost every available plant when more favorable forage is limited.

Sand mining near Ferris Mountains occurs near the recreational area near Seminoe Road. Sand removed from the area is used for golf courses. Mining in habitats of known populations is not feasible because of the isolated and rugged terrain where known populations are found.

Oil and gas exploration and development have the potential to negatively impact the plants' habitat. However, leasing activities within penstemon habitats would be avoided, and companies would be required to move pads to adjacent areas and drill diagonally.

Invasive and noxious weeds have the potential to threaten habitat and populations of penstemon as a result of competition with noxious and invasive weeds. Noxious and invasive weed control activities

could have a negative affect on the penstemon, and the use of pesticides could have the potential to negatively affect the penstemon's pollinators.

OHV activity may has both beneficial and negative impacts to penstemon and its habitat. OHV activities may ensure continued soil disturbance and erosion, possibly creating new habitat; however, driving over plants could cause mortality.

Effects of the Proposed RFO RMP

Although surveys of known potential habitat within the planning area concluded there were no populations of the blowout penstemon, effects from development activities (e.g., oil and gas, livestock management, or recreation) could occur because of the future possibility of finding additional habitat within the RMPPA.

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for blowout penstemon:

- Livestock Management —LAA
- Air Quality; Cultural; Fire and Fuels Management; Lands and Realty; Minerals; Recreation Resources; Transportation and Access Management; Vegetation; Water Quality, Watershed and Soils Management; and Wildlife and Fish—NL-i
- OHV Use—NL-d
- SMAs—NL-b
- Forest Management, Paleontology, VRM, and Wild Horse Management—NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Ute Ladies' tresses

Threats from Human Activity

Ute Ladies' tresses is threatened primarily by habitat loss and modification, though its small populations and low reproductive rate make it vulnerable to other threats.

The riparian and wetland habitats required by this species have been heavily impacted by urban development, heavy grazing, stream channelization, water diversions, and other watershed and stream alterations that reduce the natural dynamics of the stream system, recreation, and invasion of habitat by exotic plant species (USFWS 1995).

The effects of grazing are largely not known. The largest populations of the species, in Utah and Colorado, are grazed during the winter, when the species is dormant, with no noticeable effect on the species. It is plausible that moderate winter grazing maybe beneficial to Ute Ladies' tresses.

Because of the low reproductive rate, any loss of individual plants due to collection could have a major effect on the species' survival. If individual plants or flowers were collected, it could reduce the reproductive potential of the affected population significantly.

Effects of the Proposed RFO RMP

Because of the fact that no known populations occur on lands managed by the RMPPA, there would be No Effect (NE) to Ute Ladies' tresses. However, if populations were to be found within the RMPPA and on lands managed by the Bureau, additional measures would need to be taken to protect this plant, and the effects would have to be redetermined. Further mitigation actions and conservation measures are discussed in the "Analysis of Management Actions and Effects Determinations" section of this BA.

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for Ute ladies' tresses:

- Livestock Management —LAA
- Cultural; Fire and Fuels Management; Lands and Realty; Transportation and Access Management; Vegetation; Water Quality, Watershed and Soils Management; and Wildlife and Fish—NL-i
- Minerals, OHV Use, and Recreation Resources —NL-d
- SMAs—NL-b
- Air Quality, Forest Management, Paleontology, VRM, and Wild Horse Management—NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Colorado Butterfly Plant

Threats from Human Activity

In general, threats to the Colorado butterfly plant across its range include haying, grazing, herbicide spraying, and urban expansion. Fertig (2001) suggests the primary threat may be vegetative succession in the absence of periodic disturbances, which makes habitat unsuitable for seedling establishment. Other threats to the Colorado butterfly plant are the spraying of broadleaf herbicides, agricultural conversion of riparian areas, water diversions, channelization, and urban development.

Competition from non-native invasive plants can be a significant threat to the plant and can reduce population numbers. Efforts to control Canada thistle and other invasive species with chemicals can pose a direct threat to the species. In addition, many chemicals are restricted for use within riparian zones. Invasive species are often spread by livestock management and recreational activities but can also be spread by other land management activities.

Effects of the Proposed RFO RMP

Activities that may occur on Bureau lands that are likely to affect the Colorado butterfly plant include recreation, livestock management, vegetation management, and cultural site development. However, these actions will be subject to review to prevent loss of populations or their habitat.

Determination: Under the RFO RMP, it is determined that the following impacts have been determined for Colorado butterfly plant:

- Livestock Management—LAA
- Cultural; Fire and Fuels Management; Forest Management; Lands and Realty; Transportation and Access Management; Vegetation; Water Quality, Watershed and Soils Management; and Wildlife and Fish—NL-i

- Minerals, OHV Use, and Recreation Resources —NL-d
- SMAs—NL-b
- Air Quality, Paleontology, VRM, and Wild Horse Management—NE

For a further clarification on these determinations, refer to the "Effects Determination for Each Species and Each Bureau-Administered Program (NLAA and LAA)" section.

Effects Determinations for Each Species and Each Bureau-Administered Program (NLAA and LAA)

No Effect (NE) determinations are not discussed in this section. NE determinations were made for those actions that were not located in the habitat for any T&E and Sensitive Species. In addition, BLM provides conservation measures for each T&E species that apply to all authorized actions and that reduce and/or minimize potential impacts to these species.

Air Quality

Activity Description Summary

Gather meteorological and air quality data to monitor air quality components and conduct dust control measures. Individuals would be required to travel to various monitoring sites to collect meteorological and air quality data.

Surface disturbing and other disruptive activities associated with the air quality program include but are not limited to the following actions: collection of meteorological and/or air quality data, application of dust control measures, and covering of conveyor belts at mines sites (Table 7).

Impact Analysis and Effects Determination

Activities associated with the air quality program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **black-footed ferret**. The collection of meteorological and/or air quality data, application of dust control measures, and covering of conveyor belts at mines sites would have an insignificant effect on this species. This determination was reached because this program and its associated activities are generally not located in prairie dog towns, black-footed ferret habitat, and as such they are not likely to have an adverse effect on the black-footed ferret. If a project is proposed within potential black-footed ferret habitat, the project will be relocated to avoid habitat, or a survey will be completed to determine if ferrets are present.

Cultural Resources

Activity Description Summary

Record and inventory cultural resources (including excavation and photography), develop interpretive sites, use handtools and power tools, stabilize deteriorating buildings and resources, fence cultural sites, and manage historical trails.

Surface disturbing and other disruptive activities associated with the cultural resources program include but are not limited to the following actions: record cultural resources; inventory cultural resources; develop interpretive sites; use handtools, power tools, heavy machinery (surface disturbing); stabilize deteriorating buildings/resources; fence cultural resources; and temporary campgrounds (Table 7).

Impact Analysis and Effects Determination

The identification and recordation of cultural resources, including excavation with handtools and power tools, photography, stabilization of deteriorating buildings/resources, fencing of cultural resources, development of interpretive sites and temporary campsites within the Cultural Resource Program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **black-footed ferret**. Development may expose ferrets to increased human activity and surface disturbing activities associated with site development. This may result in displacement of ferrets, disruption of the animal's life activities, and harassment. However these activities are highly unlikely to be located within black-footed ferret habitat, because prairie dog towns are avoided by 50 meters or black-footed ferret surveys are completed if avoidance is not possible.

The identification and recordation of cultural resources, including excavation with handtools and power tools, photography, stabilization of deteriorating buildings/resources, fencing of cultural resources, development of interpretive sites and temporary campsites within the Cultural Resource Program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **Preble's meadow jumping mouse**. In general, these activities are short-term in nature, lasting usually less than 1 day, with individuals walking through the riparian areas. Archeological inventory involves walking and scanning the ground surface constantly for cultural resources, thus individuals are always aware of where they are stepping: although a mouse could be stepped on or disturbed, this is highly unlikely to occur. Fencing activities are usually short in duration and temporary in nature. Campsites would not be established within riparian areas but rather within existing disturbance areas, away from potential habitat; therefore it is highly unlikely that a mouse would be disturbed and/or impacted by this activity.

The identification and recordation of cultural resources, fencing of cultural resources, and temporary campsites within the Cultural Resource Program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **Preble's meadow jumping mouse Critical Habitat**: these actions would have an insignificant affect on **Critical Habitat**. In general, these activities are short-term in nature, lasting usually less than one day, with individuals walking through the riparian areas. This could result in trampling of the vegetation and temporarily impacting cover and/or shelter for the mouse. Archeological inventory involves walking and scanning the ground surface constantly for cultural resources, thus individuals are always aware of where they are stepping: although a mouse could be stepped on or disturbed, this is highly unlikely to occur. Campsites would not be established within riparian areas but rather within existing disturbance areas, away from potential habitat; therefore it is highly unlikely that a mouse would be disturbed and/or impacted by this activity.

The identification and recordation of cultural resources, including excavation with handtools and power tools, photography, and stabilization of deteriorating buildings/resources within the Cultural Resource Program *May Affect*, *but are not Likely to Adversely Affect* (*NL-I or NL-d*) the **Canada lynx**. In general, these activities are short-term in nature, lasting usually less than 1 day, with individuals walking through the spruce/fir and/or riparian areas. Archeological inventory involves walking and scanning the ground surface constantly for cultural resources, thus human activity at these sites may alter movement within migration corridors—however this is highly unlikely. These actions would have an insignificant affect on this species. Stabilization of buildings would occur in migration and transition corridors on an infrequent basis, thus human activity at these sites may alter movement within migration corridors—however this is highly unlikely and would have an immeasurable effect on the species. There is no identified Canada lynx habitat within the RMPPA; only migration corridors.

The identification and recordation of cultural resources, including excavation with handtools and power tools, photography, stabilization of deteriorating buildings/resources, fencing of cultural resources, development of interpretive sites and temporary campsites within the Cultural Resource Program *May*

Affect, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **bald eagle**. In general, these activities are short-term in nature, lasting usually less than 1 day, with individuals walking through the riparian areas. Archeological inventory involves walking and scanning the ground surface constantly for cultural resources, thus human activity at these sites may temporarily displace bald eagles or reduce nest productivity—however this is highly unlikely. These actions would have an insignificant effect on this species. Stabilization of buildings would occur in nesting and roosting habitat on an infrequent basis, thus human activity at these sites may temporarily displace nesting and roosting bald eagles—however this is highly unlikely and would have an immeasurable effect on the species because of restrictions on disruptive activities within specified buffer zones and during sensitive periods.

The identification and recordation of cultural resources, including excavation with handtools and power tools, photography, stabilization of deteriorating buildings/resources, fencing of cultural resources, and development of interpretive sites within the Cultural Resource Program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **Wyoming toad**. In general, these activities are short-term in nature, lasting usually less than 1 day, with individuals walking through the riparian areas. Archeological inventory involves walking and scanning the ground surface constantly for cultural resources, thus human activity at these sites may temporarily displace toads—however the likelihood of this is insignificant because of avoidance measures, listed in this BA, to reduce disruptive activities within Wyoming toad habitat.

The identification and recordation of cultural resources, including excavation with handtools and power tools, photography, stabilization of deteriorating buildings/resources, fencing of cultural resources, and development of interpretive sites within the Cultural Resource Program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **blowout penstemon** plant, **Colorado butterfly plant**, and **Ute ladies' tresses** plant; these actions would have an insignificant affect on these species. In general, these activities are not located in sand dunes and/or riparian areas, and the few that may be located in these habitat types are short-term in nature, lasting usually less than 1 day, with individuals walking through potential habitat. The identification and recordation of cultural resources may occur in riparian habitat; however, archeological inventory involves basically walking and scanning the ground surface constantly for cultural resources, thus the potential for stepping on and destroying any of the species may occur but would be rare because it would be rare to step on and kill a plant. Construction of fences, temporary campsites, development of interpretive sites, and stabilization activities would require plant surveys. Plant surveys would result in designation of avoidance areas to ensure protection of individual plants. Plants are located in such a small percentage of habitat (the Ute ladies'-tresses and Colorado butterfly plant have no known populations located within Bureau-administered lands), and it is highly unlikely that the action of stepping on the plant would occur.

Fire and Fuels Management

Activity Description Summary

The two main programs include fuels treatments (including biological, chemical, prescribed burning, and mechanical treatments) and wildland fire suppression. Fuels treatments are used to enhance natural resources in the RMPPA, dispose of slash and residue from timber sales, reduce fuels levels before a treatment activity, and improve habitat and rangeland health. During these activities the Bureau evaluates areas on a case-by-case basis, writes activity plans, coordinates with interested parties, and conducts the treatments.

Fire suppression activities are done on an emergency basis. Fire suppression activities include preplanning, vary with intensity of the wildland fire, use equipment (off-road vehicles, handtools,

aviation, heavy equipment), use firelines, use chemical fire suppression, and rehabilitates the sites (Burned Area Emergency Rehabilitation). Acres of wildland fire fluctuate annually.

Surface disturbing and other disruptive activities associated with the fire and fuels management program include but are not limited to the following actions: fire suppression, damage rehabilitation, prescribed burning, construct firelines, use off-road vehicles, use handtools and heavy equipment (includes bulldozers), use chemical fire suppression agents (ground-based), and the use of fire retardant drops containing chemical dyes (aircraft dispersal) (Table 7).

Impact Analysis and Effects Determination

Fire and fuels management activities M*ay Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **black-footed ferret**. It is highly unlikely that management activities would occur in a prairie dog town, due to the absence of fine fuels to carry a fire. In general, prairie dog towns act as a natural firebreak. If these activities were to occur, they would have an insignificant effect on the species.

Additional activities, including fire suppression, prescribed burning, rehabilitation, fireline construction, and use of off-road vehicles within the fire and fuels management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **Preble's meadow jumping mouse and Critical habitat**; these actions would have an insignificant effect on these species. Resource advisors are dispatched to fires to identify wildlife and associated habitat concerns and protection requirements, which reduces impacts to species. During fuels management, any displacement of species or damage to Critical habitat would be immeasurable because of timing and proper distance restrictions of planned activities. Riparian areas are used as natural firebreaks during wildland fires, so these actions rarely occur in this habitat. Prescribed burning does not occur often in this habitat based on past activities in the area. These BLM lands are generally section 15 lands (leases versus permits) and there is so little public land that projects are limited. In the event that a prescribed burn was authorized, generally the use of motorized vehicles and human traffic does not occur within 500 feet of riparian habitat and timing stipulation are implemented; therefore, impacts to the mouse and it's Critical Habitat would be discountable. Although there might be a temporary reduction in population through burn activities, overall habitat would be enhanced, resulting in long-term increases in population.

The fire and fuels management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-d or NL-i*) the **Canada lynx**. Human activities associated with fire and fuels management activities may lead to alterations in migration patterns of Canada lynx. There are no LAUs located on Bureau-administered land, although the lynx are a mobile species, and alteration of habitat with heavy equipment and human activities may force the lynx to use different travel corridors than they would normally use when undisturbed.

Fire and fuels management activities *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **bald eagle**. These actions would have an immeasurable effect on the species because of restrictions on disruptive activities within specified buffer zones and during sensitive periods. It is highly unlikely that a nest tree would be burned and/or removed or that personnel would get too close to a nest during a sensitive time period because of the distance and timing restrictions that are applicable to surface disturbing and other disruptive activities located within 1 mile of an eagle nest.

Fire and fuels management actions *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **Wyoming toad**; these actions would have an insignificant affect on the species. Human activity associated with fire and fuels management may temporarily displace toads, however the likelihood is insignificant because of avoidance measures to reduce disruptive activities within Wyoming toad habitat. In addition it is highly unlikely that these types of activities will occur within Wyoming toad habitat.

This species has extremely limited habitat; therefore, it is highly unlikely that the fire and fuels management program would occur within and/or adjacent to this habitat. Riparian habitat generally does not burn, and if a fire were to occur, although highly unlikely, then impacts would be minimal due to the habitat type.

Fire suppression, prescribed burning, construction of firelines, and the use of chemical fire suppression agents (ground-based) and fire retardant drops containing chemical dyes (aircraft dispersal) within the fire and fuels management program *May Affect*, *and are Likely to Adversely Affect* (*LAA*) the **Platte River and Colorado River species**. Fire and fuels management actions that require the drawing of water from the Platte or Colorado River systems would result in water depletion. Water depletion reduces minimum flows to downstream species, resulting in loss of habitat.

The fire and fuels management program activities, except for prescribed burns, *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **Blowout Penstemon** plant, **Colorado butterfly plant**, and **Ute Ladies' tresses** plant. These species have extremely limited habitat; therefore it is highly unlikely that the fire and fuels management program would occur within and/or adjacent to both riparian and sand dune habitat types. Riparian habitat and sand dunes, in general, do not burn, and if a fire were to occur, although highly unlikely, then impacts would be minimal due to the habitat types.

Forest Management

Activity Description Summary

The Bureau's Forest Management program activities include timber harvesting and managing the forest for other uses. Forest Management activities for timber production includes (1) preharvesting practices, which include cutting and removal of diseased trees; disease treatment by spraying; and precommercial thinning, chaining, and shearing; (2) timber harvesting practices, including timber harvesting permits; clearcuts; ensures slash disposal; allows commercial thinning, logging, skidder-type and cable yarding; construction of roads and landings; lopping, scattering, roller chopping, and burning of slash; and helicopter logging; (3) noncommercial timber harvesting practices, including the collection and cutting of firewood, Christmas trees, posts, poles, and wildings; and (4) post-timber harvesting practices, including reclamation efforts such as site regeneration and stand replacements, fencing regenerated areas, and rehabilitation surveys.

Forest Management for other uses includes assessment of forest health, livestock management, recreation management, wildlife habitat management, prescribed burning, acquisition of easements, pursuing legal access, allowing road development, and installing drain culverts and water bars.

Surface disturbing and other disruptive activities associated with the Forest Management program include but are not limited to the following actions: rehabilitation surveys; timber harvesting; artificial regeneration (planting harvested areas, including with new seedlings); fencing regenerated areas; clearcuts (including stand replacement); selective cutting; slash disposal; site regeneration (natural); precommercial thinning; collection of firewood, posts, poles, Christmas trees, and wildings; commercial thinning; skidder-type yarding; logging operations; cable yarding; road and landing construction; shearing; installation of drain culverts, water bars, or ditches; cut and remove diseased trees; lopped, scattered, roller chopped, or burned slash; helicopter logging; disease treatment sprayings; and spraying of grasses and shrubs (Table 7).

Impact Analysis and Effects Determination

Forest Management activities *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **black-footed ferret**; these actions would have an insignificant affect on these species. In general, it is highly unlikely that black-footed ferrets will inhabit those prairie dog towns located adjacent to and/or within forest ecosystems. There is the potential to develop temporary access roads within or adjacent to forest habitats, and these roads may travel through or adjacent to these towns; however, since ferrets do not inhabit these towns, it is highly unlikely that a black-footed ferret would be harmed, harassed, and/or taken as a result of this action. Disease treatment sprayings may occur within potential black-footed ferret habitat; however, these chemicals would not be toxic to ferrets, and towns would be avoided during application.

Forest Management activities *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **Preble's meadow jumping mouse**; these actions would have an insignificant affect on these species. Although highly unlikely, there is the potential that a person could step on a mouse during these activities or drive over a mouse in the lower elevations near riparian habitats. Disease treatment sprayings may occur within potential Preble's meadow jumping mouse habitat; however, these chemicals would not be toxic to the mice, and riparian habitat would be avoided during application.

The Forest Management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-d or NL-i*) the **Canada lynx**. Timber harvesting, precommercial thinning, logging operations, road and landing construction, shearing, helicopter logging, disease treatments spraying, and clearcuts would reduce cover associated with Canada lynx migration routes. These activities may occur within lynx travel corridors; however, the likelihood of disturbing a lynx is very low. Human activities associated with these actions may lead to short-term avoidance of these areas by Canada lynx

Selective cutting; slash disposal; site regeneration (natural); commercial thinning; cutting and removing diseased trees; and lopping, scattering, roller chopping, and burning of slash *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Canada lynx**. These actions would improve forest health and result in having a beneficial affect on the species. Human activities associated with these actions may lead to short-term avoidance of travel corridors by Canada lynx; however, in general these actions may enhance habitat for prey species of the lynx. There are no LAUs identified on Bureau-administered land, and actual travel corridors have not been identified at this time.

The collection of firewood, posts, poles, Christmas trees, and wildings within the forest management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **bald eagle**. These activities are distributed throughout the RMPPA and may occur within the vicinity of bald eagle nests or roosts. These activities (except the collection of posts and poles) are casual use and are not limited to designated areas and may affect bald eagles by forcing them to seek other nesting and roosting sites. The collection of posts and poles occurs in designated areas which are located outside of known bald eagle habitat. There are only six bald eagle nests that have been located on Bureau-administered land, and although post and pole cutting activities do occur, it is highly unlikely that they will occur near a nest. Posts and poles, Christmas trees, and firewood are usually collected in the forest habitat and away from major riparian areas where bald eagle nests in the RMPPA are located. Private property along the major riparian corridors, such as the North Platte and Little Snake Rivers, where these nests are located makes it difficult for the public to access these nests. Wildings are collected along riparian areas, but, again, there are only six known nests within the RMPPA, and it is highly unlikely that a person collecting wildings would disturb a nesting bald eagle.

Additional forest management actions that *May Affect*, *but are not Likely to Adversely Affect* (*NL-d or NL-i*) the **bald eagle** include fencing regenerated areas, cutting and removing diseased trees, helicopter

logging, and disease treatment sprayings. In general, these activities would not likely occur within riparian areas (no surface disturbing activities occur within 500 feet of riparian habitat), and nesting and roosting habitat for the bald eagle; therefore impacts to this species would not likely occur. Activities that may occur near habitat for the eagle would be temporarily disruptive to bald eagles that may be nesting in the area. In addition these actions may create habitat and hiding areas for some prey species for the eagles, which would be a benefit. In general, practices would be implemented to minimize and reduce disturbance to bald eagles and prevent surface disturbing activities from occurring during nesting and roosting periods, which would reduce and/or eliminate these impacts.

Lands and Realty

Activity Description Summary

The lands and realty management program supports multiple-use management goals of the Bureau resource programs and responds to public requests for land use authorizations. In support of other programs, the lands and realty program processes stock driveway and locatable mineral entry withdrawals; establishes protective withdrawals; pursues cooperative agreements; considers temporary use permits; considers new withdrawals; and leases acres for communication sites, recreation, and public purposes. Authorizations include land tenure adjustment requests and land withdrawals. ROW authorizations include but are not limited to access roads, well pads, pipelines, communication sites, ditches and canals, buried telephone lines, fiber optic lines and electrical distribution lines, wind energy sites, meteorological towers, and power lines.

Surface disturbing and other disruptive activities associated with the lands and realty program include but are not limited to the following actions: establish withdrawals; acquisition of access easements; acquisition of conservation easements; disposal or transfer of public lands through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or RPP, leases, or patents; issue ROWs and leases; ROW power lines; lease communication sites; ROW pipelines; ROW ditches and canals; ROW roads (including stream crossings); ROW well pads; ROW reservoirs; ROW buried telephone and fiber optic lines; ROW wind power generation farms and facilities; ROW compressor stations and other facilities; temporary use permits; roads closures/rehabilitation; and designate, cancel, or change stock trail driveways (Table 7).

Impact Analysis and Effects Determination

The lands and realty management actions *May Affect*, *and are not Likely to Adversely Affect* (*NL-d and NL-i*) the **black-footed ferret**. The disposal of public lands may impact black-footed ferret if there are prairie dog towns located in these parcels proposed for disposal. The overall goal of the RMPPA is to maintain lands that contain potential habitat for black-footed ferrets in public ownership; however, transfer of acreage due to land tenure actions may occur. Lands found to have black-footed ferret habitat would not be sold or exchanged unless it would benefit the species. Development of utility transportation corridors may increase the potential damage to the habitat for black-footed ferrets in these areas. ROWs and leases are evaluated to determine their impacts to black-footed ferret habitat, and where habitat is identified, black-footed ferret surveys are completed to determine presence prior to surface disturbing activities. The issuance of temporary use permits will be evaluated to determine their impacts on habitats that may be associated with black-footed ferrets. Temporary use permits require an analysis to determine if black-footed ferrets are present in potential habitat areas. Designating stock driveways would potentially concentrate livestock to potential black-footed ferret habitat; however, these activities are short-term in duration, and impacts are determined to be minimal. As a result of these conservation practices, impacts to black-footed ferret populations would not occur or would be immeasurable.

Establish withdrawals, acquisition of conservation easements, and roads closures/rehabilitation activities within lands and realty management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **black-footed ferret**; these actions would have a beneficial affect on these species. These actions close areas to surface disturbing activities that could have a negative affect on black-footed ferrets and their habitat, and reduce potential for habitat fragmentation.

ROWs/leases for roads (including stream crossings) and reservoirs within the lands and realty management program *May Affect*, *and are Likely to Adversely Affect* (*LAA*) the **Preble's meadow jumping mouse and Critical habitat**. Although highly unlikely, construction activities, including the crossing of streams by heavy equipment, associated with issuance of ROWs actions for roads may occur within Preble's meadow jumping mouse habitat and Critical Habitat; however, the use of timing restrictions and other mitigation practices (e.g. requiring projects to be buried) would be implemented and would reduce and or eliminate the potential for the loss of this species. In the event that a mouse was present outside of a timing timing stipulation and was run over, there would be an impact to that mouse. In addition, the ROWs would be perpendicular to minimize impacts to the habitat. In some cases, ROWs/leases would not be authorized if the effects to the Preble's meadow jumping mouse Critical Habitat could not be mitigated, since ROW authorizations are discretionary actions. These BLM lands are generally section 15 lands (leases versus permits) and there is so little public land that projects are limited. At most, the BLM authorizes one to two projects within a three to five year time span in these areas; therefore, impacts to the mouse and its Critical Habitat would be minimal. Large-scale reservoirs would inundate mouse habitat; however, there are such few reservoirs that have the potential to be constructed in these habitat types and this is highly unlikely to occur. There have no large reservoirs constructed within the last five to ten years in the area. Currently, the Rawlins Field Office has a minute amount of designated Critical Habitat, less than 1% of the RMP area. In the event that projects are proposed they would be evaluated to determine their impacts to Preble's meadow jumping mouse and Critical habitat. When habitat is identified, surface disturbing and destructive activities will be limited during critical time periods and within 100 meters [330 feet] of the 100-year flood plain, reducing disturbance and loss to the mouse and the habitat; however, the inundation of habitat by a reservoir would ultimately remove riparian vegetation that the mouse could use.

ROWs/leases for pipelines and power lines within the lands and realty management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **Preble's meadow jumping mouse and Critical habitat**. Construction activities, including the crossing of streams by heavy equipment, associated with issuance of ROWs actions for powerlines and pipelines may occur within Preble's meadow jumping mouse habitat and Critical Habitat; however, the use of timing restrictions and other mitigation practices (e.g. requiring projects to be buried) would be implemented and would reduce and or eliminate the potential for the loss of this species. Pipelines would be buried in areas where the habitat would require this action to reduce and/or eliminate impacts to the mouse and/or Critical Habitat. The ROWs would be perpendicular to minimize impacts to the habitat. In some cases, ROWs/leases would not be authorized if the effects to the Preble's meadow jumping mouse Critical Habitat could not be mitigated, since ROW authorizations are discretionary actions. These BLM lands are generally section 15 lands (leases versus permits) and there is so little public land that projects are limited. At most, the BLM authorizes one to two projects within a three to five year time span in these areas; therefore, impacts to the mouse and its Critical Habitat would be discountable. Powerlines would be placed outside of the riparian habitat and timing stipulation would be implemented to reduce and eliminate impacts to the mouse; therefore, impacts to the mouse would be minimal to non-existent.

Lands and reality management actions *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) **Preble's meadow jumping mouse and Critical habitat**. Livestock use of driveways usually occurs along roads, and it is unlikely that Preble's meadow jumping mouse habitat would be disturbed. In the event that livestock cross riparian habitat, it would be highly unlikely (because mice are mobile) that they would

step on a mouse and/or a burrow. Disposal or transfer of public lands through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or RPP, leases, or patents, and all other ROWs would not occur in habitat that has been identified for T&E and Special Status Species; therefore, the potential to cause the loss of habitat or individuals would be minimal-to-nonexistent. The Bureau utilizes a criteria process to identify areas where T&E and Special Status Species habitat is located, and does not authorize these action where habitat is present. The issuance of temporary use permits would be evaluated to determine their impacts on habitats that may be associated with the Preble's meadow jumping mouse and their Critical habitat. Temporary use permits require an analysis to determine if they are present in potential habitat areas. ROWs and leases are evaluated to determine their impacts to Preble's meadow jumping mouse and Critical habitat, and where habitat are identified, surface disturbing and other disruptive activities will be limited during critical time periods and within 100 meters [330 feet] of the 100-year flood plain, reducing disturbance and loss to the mouse and the habitat.

Establish withdrawals, acquisition of conservation easements, and roads closures/rehabilitation activities *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) **Preble's meadow jumping mouse and Critical habitat**. These actions would have a beneficial affect on this species by closing areas and reducing vehicle access, thereby minimizing human presence and creating undisturbed habitat for mouse. These areas would also be reclaimed, which would create additional habitat over the long-term.

The lands and realty management actions *May Affect*, *and are not Likely to Adversely Affect* (*NL-d and NL-i*) the **Canada lynx**. Livestock use of driveways usually occurs along roads, and it is unlikely that Canada lynx would be disturbed. Disposal or transfer of public lands through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or RPP, leases, or patents, and all other ROWs would have the potential to cause the loss of travel corridor habitat. ROWs and leases are evaluated to determine their impacts to Canada lynx corridors, and where habitat corridors are identified, surface disturbing and disruptive activities will be limited. Disposal of lands with potential lynx habitat may affect the Canada lynx's ability to utilize travel corridors linking more desirable habitats found on the Medicine Bow National Forest; however, the overall goal of the RMPPA is to maintain lands that contain potential habitat for the Canada lynx. Temporary use permits require an analysis to determine if they are present in potential habitat areas and travel corridors. These impacts are short-term and have limited impacts to the Canada lynx populations.

Establish withdrawals, acquisition of conservation easements, and roads closures/rehabilitation activities within lands and realty management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) **Canada lynx**. These actions would have a beneficial affect on this species by closing areas to surface disturbance, creating undisturbed habitat for lynx.

ROWs/leases for utility transportation corridors, power lines, roads (including stream crossings), wind power generation facilities, and the issuance of temporary use permits within lands and realty management program *May Affect*, *and are Likely to Adversely Affect* (*LAA*) the **bald eagle**. The issuance of temporary use permits will be evaluated to determine impacts on bald eagle habitats. At this time, there are six known bald eagle nests located on Bureau-administered land, and the Bureau implements both timing and surface use restrictions to these habitat types. Direct impacts may occur from construction activities and also from collisions with power lines, vehicles, and wind power generators. Eagles may avoid areas because of increased human presence.

Lands and realty management actions *May Affect*, *but are not Likely to Adversely Affect* (*NL-i and NL-d*) the **bald eagle**. The disposal of public lands may impact bald eagles if habitat were located in parcels proposed for disposal; however, the overall goal of the RMPPA is to maintain lands that contain habitat for bald eagles in public ownership. Lands found to have bald eagle habitat would not be sold or exchanged unless it would benefit the species. Although eagles may be displaced from increased human

presence during construction, activity would not be allowed during critical time periods or within established buffer zones for roost and nest sites. After projects are constructed, there would be minimal disturbance.

Lands and realty management actions *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **bald eagle.** Establishment of withdrawals, acquisition of conservation easements, and road closures/rehabilitation activities would minimize human activity in roost or nest areas. Reservoirs may provide additional foraging areas, which would have a beneficial affect to this species.

Lands and realty management actions *May Affect*, *but are not Likely to Adversely Affect* (*NL-i and NL-d*) the **Wyoming toad**. Disposal of lands with potential Wyoming toad habitat would not occur. In general, T&E and Special Status Species habitat is very limited and is not disposed of during land exchanges. Construction activities associated with ROWs may result in the direct loss of individuals and habitat; however, surveys would be completed to reduce the loss of a toad prior to surface disturbing activities. Most ROW projects are either buried beneath the surface, bored beneath riparian areas, and/or are located 500 feet from riparian habitat; therefore, the toad would be protected, and the effects on the Wyoming toad are insignificant. Other ROW projects are unlikely to be constructed within the 100-year floodplain or within 100 feet of ephemeral channels, as these are designated avoidance areas. Lands and realty management actions *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the Wyoming toad. Establishment of withdrawals, acquisition of conservation easements, and road closures/rehabilitation activities would minimize human activity and increase Wyoming toad habitat. Rehabilitation of roads would replace habitat, and withdrawals would ensure that no mining activities occurred in toad habitat.

ROWs/leases for utility transportation corridors, pipelines, roads (including stream crossings), well pads, reservoirs, and the issuance of temporary use permits within the lands and realty management program *May Affect*, *and are Likely to Adversely Affect* (*LAA*) the **Platte River and Colorado River species**. In addition, ROWs for ditches and canals within the lands and realty management program *May Affect*, *and are Likely to Adversely Affect* (*LAA*) the Colorado River species. Lands and realty management actions requiring the drawing of water from the Platte or Colorado River systems would result in water depletion. Water depletion reduces minimum flows to downstream species, resulting in loss of habitat. Disposal of lands that contain the headwaters of the Platte River and Colorado River systems may affect the Platte River and Colorado River species by increasing water depletion activities on disposed lands.

Disposal of lands; issuance of ROWs and leases, specifically ROWs for pipelines, roads, well pads, buried telecommunication lines, wind power generation farms and facilities, compressor stations, temporary use permits, and stock driveways; and the issuance of temporary use permits within the lands and realty management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i and NL-d*) the **blowout penstemon plant** species. Disposal of lands that contain potential habitat for the blowout penstemon would not occur. This would only occur if the state exercised its right to indemnity selection of land; however, this would be very rare. No lands with identified habitat would be otherwise sold or exchanged; therefore the potential for this to occur is minimal. Issuance of ROWs and leases, specifically ROWs for pipelines, roads, well pads, buried telecommunication lines, temporary use permits, and stock driveways, may directly affect the blowout penstemon plant. Impacts may occur from construction or other surface disturbing activities and the resultant loss of habitat or individual plants. It may also result in the taking of these plants by collectors. The issuance of temporary use permits will be evaluated to determine their impacts on habitats that may be associated with the blowout penstemon plants. All ROWs require an analysis to determine if potential habitat is present in project areas. Areas containing known populations will be designated as an ACECs, therefore no actions will be authorized which would result in a negative impact to known plants or their habitat.

Establishment of withdrawals; acquisition of conservation easements; and road closures/rehabilitation activities within the lands and realty management program *May affect*, *but are not likely to adversely affect* (*NL-b*) the **blowout penstemon plant** species; these actions would have a beneficial effect to this species. The withdrawals would ensure that no mining activity occurred in identified habitat. The rehabilitation activities would help restore habitat for the penstemon. These actions would enhance the ACEC management actions to protect the plants and their habitat.

Disposal of lands; issuance of ROWs and leases, specifically ROWs for pipelines, roads, well pads, buried telecommunication lines, wind power generation farms and facilities, compressor stations, temporary use permits, and stock driveways; and the issuance of temporary use permits within the lands and realty management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i and NL-d*) the **Colorado butterfly plant** and **Ute ladies' tresses plant** species. Disposal of lands that contain potential habitat for these species may affect the plants' ability to survive and reproduce, depending on the new management regime the land would be under. This would only occur if the state exercised its right to indemnity selection of land. No lands with identified habitat would be otherwise sold or exchanged; therefore the potential for this to occur is minimal. Issuance of ROWs and leases may directly affect these species. Impacts may occur from construction or other surface disturbing activities and the resultant loss of habitat or individual plants. It may also result in the taking of these plants by collectors. The issuance of temporary use permits will be evaluated to determine their impacts on habitats that may be associated with these plants. These activities would be constructed 500 feet from riparian habitat; therefore, impacts to the Colorado butterfly plant and the Ute ladies' tresses as a result of implementing these projects would be insignificant. An analysis would be completed, and mitigation identified, prior to authorization for those projects that are located within habitat, to prevent disturbance to these plants. All ROWs require an analysis to determine if potential habitat is present in project areas.

Establishment of withdrawals, acquisition of conservation easements, and road closures/rehabilitation activities within the lands and realty management program *May affect*, *but are not likely to adversely affect* (*NL-b*) the **Colorado butterfly plant** and the **Ute ladies' tresses plant** species; these actions would have a beneficial effect to this species. The withdrawals and easements would ensure that no mining activity or other surface disturbing activity occurred in identified habitat. The rehabilitation activities would help restore habitat for these plants and may increase potential habitat. These actions would have a beneficial effect on the two plant species by leaving habitat intact and reducing and/or eliminating the potential for disturbance.

The disposal or transfer of public lands through Desert Land Entry, public sale, exchange, Wyoming indemnity selection, or R&PP leases or patents; or designating utility transportation corridors within the lands and realty management program *May Impact*, *but is not likely to contribute to the need for federal listing* (*MI*) of the **Western yellow-billed cuckoo**. Surface disturbing activities located within cuckoo habitat has the potential to affect the birds; however, the likelihood is minimal because of standard operating practices, required mitigation, and the lack of identified habitat in the RMPPA. These activities will be located outside a 500-foot buffer from riparian areas containing habitat; therefore, impacts to the species would be minimal. No surface disturbing or other disruptive activities will be allowed within 1/2-mile of identified habitat during the nesting period. This will further reduce any potential impact to the birds or their habitat.

Livestock Management

Activity Description Summary

The livestock management program includes the following management actions: livestock management, vegetation treatments, and range improvements. Livestock management includes authorizing livestock

grazing, livestock conversions, permit authorizations, placements of salt and mineral supplements, and herding of livestock. Vegetation treatments include the use of prescribed fire; chemical, mechanical, and biological treatments; and noxious and invasive weed control. Range improvements include fence construction and maintenance, water developments, and instream structures.

Surface disturbing and other activities associated with the livestock management program include but are not limited to the following actions: (1) livestock conversion; (2) livestock grazing authorization (adjust season of use, distribution, kind, class, and numbers of livestock); (3) construct exclosures; (4) design, implement, and monitor grazing systems; (5) construct, maintain, and modify fences; (6) develop water facilities (catchments, reservoirs, springs, pipelines, instream structures, and wells); (7) supplemental feeding authorization (Table 7).

Impact Analysis and Effects Determination

The livestock management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-i and NL-d*) the **black-footed ferret**. The development of water facilities may affect the black-footed ferret during construction and maintenance of projects because of the displacement of prey habitat and human presence during construction. In addition there is the possibility a ferret could drown in water tanks. There is also the possibility that these habitat modifications would result in greater presence of predators to black-footed ferrets (e.g., coyotes). Livestock grazing authorization would have an insignificant effect on these species. Surveys would be conducted in potential ferret habitat prior to any activity which would potentially affect ferrets, to minimize the chance of harming or disturbing them. Also, at this time no ferrets have been located outside the Shirley Basin in the RMPPA; therefore the potential to disturb ferrets is further reduced.

Developing water facilities (catchments, reservoirs, springs, pipelines, instream structures, and wells) within the livestock management program *May Affect*, *and is Likely to Adversely Affect* (*LAA*) the **Preble's meadow jumping mouse and Critical Habitat**. The concentration of livestock could result in degradation or loss of habitat, including loss of cover and soil compaction, however channel water developments designed to reduce trailing and use of riparian habitat by livestock would reduce these impacts to riparian areas. In addition, maintaining riparian habitat in Proper Functioning Condition (PFC) will reduce and/or eliminate loss of this habitat. Surface disturbing or other disruptive activities within identified or known breeding habitat would not be allowed between May 15 and August 15, and activity within identified hibernaculum between August 16 and May 14 would be intensively managed. There is also the possibility that these habitat modifications would result in greater presence of predators to Preble's meadow jumping mice (e.g., coyotes). Developing these water facilities in Preble's habitat would disturb or inundate habitat and possibly result in the loss of individuals. Increased human activity during water facility construction operations could temporarily displace the Preble's meadow jumping mouse. These activities are uncommon, and in the last 20 years, one or two projects have been completed. It is projected that only one to two projects will be required in the next 20 years. Vehicle and equipment use during construction activities may result in the loss of a Preble's meadow jumping mouse. In addition, indirect impacts to habitat could occur from the concentration of livestock in new areas, increasing disturbance in certain areas and reducing disturbance in others.

The livestock management program (other than water developments) *May Affect*, *and is not Likely to Adversely Affect* (*NL-d*) the **Preble's meadow jumping mouse and Critical Habitat**. Increased human activity during fence and exclosure construction operations could temporarily displace the Preble's meadow jumping mouse. Vehicle use during construction and maintenance activities may result in the loss of a Preble's meadow jumping mouse. Riparian exclosures would improve riparian health by removing negative effects from livestock grazing, thereby maintaining or enhancing Preble's habitat. In

addition, indirect impacts to habitat could occur from the concentration of livestock in new areas, increasing disturbance in certain areas and reducing disturbance in others.

The concentration of livestock (e.g., funneling of activity along fences) would result in degradation or loss of habitat, including loss of cover and soil compaction; however, livestock conversions may affect Preble's meadow jumping mouse and their Critical habitat based on the change in forage utilization that may potentially reduce the amount of cover used by these species. Cattle use riparian zones and would trample these areas, reducing habitat available for these mice. However, the implementation of grazing systems (including changes in season of use, distribution, kind and number of livestock) would incorporate Standards for Rangeland Health which would maintain or enhance riparian areas. These standards state: "Grazing management practices will restore, maintain, or improve riparian plant communities. Grazing management strategies consider hydrology, physical attributes, and potential for watershed and ecological site. Grazing management will maintain adequate residual plant cover to provide for plant recovery, residual forage, sediment capture, energy dissipation, and ground water recharge." Meeting BLM Standards for Rangeland Health will maintain habitat in adequate condition to support the Preble's meadow jumping mouse and its' Critical Habitat. For all range improvement projects, no surface disturbing activity will be allowed in identified or known breeding habitat between May 15 and August 15, or in identified hibernaculum between August 16 and May 14, to reduce the potential to disturb the mouse or its habitat.

The livestock management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-i*) the **Canada lynx**. The development of water facilities (catchments, reservoirs, springs, pipelines, instream structures, and wells) would have a beneficial effect on lynx. Increased human activity during water facility construction operations could temporarily alter the lynx travel corridors, however off channel water developments would provide water when and if lynx are moving between occupied habitats, and would have a long-term benefit. At this time there are no identified lynx travel corridors located within the RMPPA; however habitat exists for them to occur.

The livestock management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-i and NL-d*) the **bald eagle**. The implementation and monitoring of grazing systems would result in improved rangeland health and would not generally disturb nesting and foraging eagles. There could be incidences of individual eagle disturbance from human presence. There are only six known bald eagle nests located within Bureau-administered lands, and it is highly unlikely that eagles would be disturbed from livestock grazing. The construction, maintenance, and modification of fences and exclosures, and the development of water facilities would potentially result in disturbance to eagles. Maintenance on these projects may increase human disturbance near nests and/or wintering habitat. Supplemental feeding would be authorized on a case-by-case basis under emergency conditions only and would potentially disturb nesting or roosting eagles. Changes in livestock management practices are approved on a case-by-case basis only when the change maintains or improves rangeland health, including riparian systems. Riparian exclosures would improve riparian health by removing negative effects from livestock grazing, thereby improving recruitment of new trees for potential nesting habitat. Timing stipulations for activities potentially affecting eagles would remove disturbances from these activities during critical time periods.

The livestock management program activities *May Affect*, *but are not Likely to Adversely Affect* (*NL-i and NL-d*) the **Wyoming toad**. Currently, there are no known toad populations located on Bureau lands, which further reduces the likelihood of these impacts occurring. Future reintroductions or expansions of toad populations may occur on Bureau lands. Increased human activity during fence and exclosure construction operations could temporarily displace the Wyoming toad. During construction and maintenance activities, all efforts will be taken to avoid disturbing the Wyoming toad. Riparian exclosures would improve riparian health by removing negative effects from livestock grazing, thereby maintaining or enhancing Wyoming toad habitat. In addition, indirect impacts to habitat could occur

from the concentration of livestock in new areas, increasing disturbance in certain areas and reducing disturbance in others. The concentration of livestock (e.g., funneling of activity along fences) would result in degradation or loss of habitat, including loss of cover and soil compaction; however, livestock conversions may affect Wyoming toad and their habitat based on the change in forage utilization that may potentially reduce amount of cover used by these species. Currently, in potential Wyoming toad habitat, there are no grazing authorizations for sheep. Cattle use riparian zones and would trample these areas, reducing habitat available for these toads. However, the implementation of grazing systems, (including changes in season of use, distribution, kind and number of livestock) would incorporate Standards for Rangeland Health, which would maintain or enhance riparian areas. Supplemental feeding would be authorized on a case-by-case basis under emergency conditions only and would potentially disturb hibernating toads.

The development of water facilities (catchments, reservoirs, springs, pipelines, instream structures, and wells connected to the surface aquifer) within the livestock management program *May Affect*, *and are Likely to Adversely Affect* (*LAA*) the **Platte River and Colorado River species**. Direct impacts may occur from water depletion associated with construction, development, and operation of these activities and facilities. The increased water surface area of catchments and reservoirs will lead to increased evaporative loss of water, thereby causing additional depletions to the systems.

Livestock conversions, livestock grazing authorizations, or implementing grazing systems within the livestock management program *May Affect*, *and are Likely to Adversely Affect* (*LAA*) the **blowout penstemon plant**. Livestock management activities generally benefit the habitat necessary for these plants if timed to occur up to 1 month prior to flowering. Livestock grazing may affect these plants by crushing or removing individual plants. A beneficial effect from livestock presence may occur as a result of sand dune disturbance from livestock movement, which helps maintain habitat requirements for the plant. Conservation measures to protect this plant will include intensive management of livestock use during critical time periods to allow the plants to flower and set seed. Intensive management includes distance restrictions, seasonal or timing restrictions, rehabilitation standards, use of best management practices for grazing, and/or fencing. Cattle usually avoid these soft sand dune areas but may step on and crush very few individual plants, or consume them along with other forage as they move through these areas to better foraging sites. Also, the blowout penstemon is seldom grazed because of low palatability to cattle. Although individual plants may be damaged, and while the fitness of the plants may be affected for the season, the plants usually recover, and the overall population is minimally affected (Stubbendieck et al. 1997). Grazing is recognized as a beneficial activity that maintains the habitat for these plants (Fertig 1999).

Construction of fences, exclosures, and water developments within the livestock management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-i and NL-d*) the **blowout penstemon** plant. This activity would be intensively managed in occupied habitat. Vehicle use during construction activities may result in the loss of an individual plant. In addition, indirect impacts to habitat could occur from the concentration of livestock (e.g., funneling of activity along fences) in new areas, increasing disturbance in certain areas and reducing disturbance in others. The penstemon requires early successional, disturbed habitat (shifting sand dunes), therefore increased sand dune disturbance from livestock use maintains and/or increases these conditions.

Livestock conversions, livestock grazing authorizations, or implementing grazing systems within the livestock management program *May Affect*, *and is Likely to Adversely Affect* (*LAA*) the **Colorado butterfly** plant and **Colorado butterfly plant Critical Habitat**, and **Ute ladies' tresses plant**. Livestock grazing generally benefits the habitat necessary for these plants by reducing competition from other plants. Livestock conversion (change from sheep to cattle) or livestock grazing authorizations may affect these plants by increasing grazing pressures within riparian areas and may lead to the crushing or removal

of individual plants. A beneficial effect from livestock use may occur because of thinning of dense vegetation, which reduces or eliminates competition with other plant species. Conservation measures to protect these plants will include intensive management of livestock use during critical time periods to allow the plants to flower and set seed. Intensive management includes distance restrictions, seasonal or timing restrictions, rehabilitation standards, use of best management practices for grazing, and/or fencing. Livestock are attracted to riparian areas and may step on and crush individual plants or consume them along with other forage. In Critical Habitat, soil compaction and introduction of exotic/noxious plant species may occur as a result of grazing activities, and this could modify the habitat somewhat. Although individual plants may be damaged, and while the fitness of the plants may be affected for the season, the plants usually recover, and the overall population is minimally affected.

Livestock management activities (projects that support livestock grazing; not the actual grazing itself) *May Affect*, *but are not Likely to Adversely Affect* (*NL-i and NL-d*) the **Colorado butterfly plant** and **Ute ladies' tresses plant**. Currently, there are no known plant populations located on Bureau lands; however, Critical Habitat is located with one BLM-administered grazing allotment. Construction of fences, exclosures, and water developments would be intensively managed in occupied habitat. Vehicle use during construction and maintenance activities may result in the loss of an individual plant. Riparian exclosures, or potential habitat around known population of the plant, would improve riparian health by removing negative effects from livestock grazing, thereby maintaining or enhancing plant habitat habitat. The concentration of livestock (e.g., funneling of activity along fences) would result in degradation or loss of habitat, including loss of cover and soil compaction. Livestock conversions may effect these plants and their habitat based on the change in forage species utilization.

The development of water facilities, primarily catchments and reservoirs, within the livestock management program *May Impact*, *but is not likely to contribute to the need for federal listing* (*MI*) of the **Western yellow-billed cuckoo**. These actions have the potential to flood habitat and alter stream flows required for cottonwood/willow reestablishment. Proposed projects will be designed and locations selected to minimize disturbances to habitat essential for the Western yellow-billed cuckoo. Surface disturbing or other disruptive activities will be prohibited within 1/2-mile of identified habitat during the period of April 15 to August 15 for the protection of nesting Western yellow-billed cuckoos. There have been no sightings of this bird, but there is potential habitat. These conservation measures would minimize any potential impact to the cuckoos or their habitat.

Minerals

Activity Description Summary

The minerals program is divided into three categories: disposable minerals, leasable minerals, and locatable minerals.

Disposable minerals include sand, gravel, sandstone, shale, limestone, dolomite, and other material considered a variety. Uses for these materials include road development and maintenance, building materials, decorative stone, and site reclamation which includes removing all manmade debris, re-contouring, reducing steep slopes, topsoil, and seeding and planting vegetation.

Leasable minerals include coal, oil, gas, and coalbed methane (bentonite is currently under reconsideration on Bureau lands). Mineral exploration includes opening new areas to geophysical exploration; leasing; and potentially drilling for oil, gas, coalbed methane, and other leasable minerals. Mineral development includes expanding the exploration phase and constructing roads, pads, and other facilities; constructing aboveground and buried pipelines; and reclamation activities.

Locatable minerals include bentonite, uranium, gypsum, silver, gold, platinum, cobalt, and other precious metals. Actions associated with the extraction of these materials include surface disturbance; construction of roads, buildings, and utility lines; and reclamation.

Surface disturbing and other disruptive activities associated with the minerals program include but are not limited to the following actions: apply dust control measures; restrict flaring of natural gas; control/limit emissions; construct and reclaim well pads, access roads, and reserve pits; construct reservoirs associated with water disposal; construct compressor stations, product enhancement and disposal facilities; build pipelines associated with leases or units; install power lines associated with leases or units; build wind power facilities and turbines associated with leases or units; develop coal reserves; explore for and develop locatable minerals (gold, silver, cobalt, etc.); mine for mineral materials (sand and gravel, decorative stone, aggregate); and conduct geophysical exploration (Table 7).

Impact Analysis and Effects Determination

Minerals program activities *May Affect*, *but are not Likely to Adversely Affect* (*NL-i and NL-d*) the **black-footed ferret**. The construction and reclamation of well pads, access roads, and reserve pits; reservoirs associated with water disposal; and compressor stations, product enhancement and disposal facilities will potentially displace **black-footed ferrets** missed by surveys from increased human presence associated with these activities. There is the potential for ferret that were not detected during surveys to be disturbed, but to date and after several black-footed ferret surveys completed in the RMPPA, no ferrets have been identified in the RMPPA outside of the Shirley Basin area. In addition, these facilities provide raptor perches and nesting sites that may indirectly lead to increased predation of prairie dogs, affecting the prey base of ferrets. In general, pipeline, power line, and windpower projects are not located within potential black-footed ferret habitat, so there would be no direct impact to the ferret. Pipeline and power line projects that are located within prairie dog towns would usually be buried and would potentially result in an inadvertent loss of a ferret. Pipeline construction results in disturbed soils (easier to dig in), which may attract prairie dogs and create additional habitat and subsequent prey base for the ferret. Windpower projects associated with oil production would be a minor occurrence, are located on high ridges or benches, and generally are not placed within existing prairie dog towns. Locatable mineral development rarely occurs within potential black-footed ferret habitat; therefore impacts to this species would be insignificant. Geophysical projects may be located within potential habitat; these projects would potentially damage the habitat (by driving over and collapsing burrows) or result in an incidental loss of a ferret (by crushing). It should be noted that prairie dogs tend to move toward disturbance, and ferrets have the potential to move into these new towns (i.e., disturbance at Meeteesee). Suitable prairie dog towns will be avoided if at all possible. If suitable prairie dog town/complex avoidance is not possible, surveys of towns/complexes for black-footed ferrets will be conducted in accordance with the Service guidelines and requirements

Minerals program activities *May Affect*, *but are not Likely to Adversely Affect* (*NL-i and NL-d*) the **Preble's meadow jumping mouse and Critical Habitat**. Leasable mineral development (well pads, water disposal reservoirs, and associated facilities) has the potential to disturb Preble's in upland habitats within 100 meters [330 feet] of the 100-year flood plain immediately adjacent to the riparian zones where these mice are thought to occur. However, the potential for leasable minerals to occur in potential Preble's habitat is very low because the geology for these minerals is not present, and conservation measures would minimize disturbance to the mouse and the Critical habitat. Locatable mineral exploration/development and mineral material extraction activities, and associated human presence within and adjacent to Preble's meadow jumping mouse habitat, may result in the loss of habitat and displacement of the local mouse population. Vehicle use associated with dust control measures and all minerals management activities has the potential to kill mice, although this is unlikely to occur. Geophysical projects may be located within potential habitat; these projects would potentially damage the

habitat (by driving over) or result in an incidental loss of a mouse (by crushing). Mineral material disposals (e.g., sand & gravel) are not permitted within 500 feet of a riparian area. Rawlins Field Office has such a small amount of potential Preble's habitat that the Surface disturbing and other disruptive activities will be intensively managed to maintain or enhance designated Critical Habitat for the Preble's meadow jumping mouse. Timing and distance restrictions will also be applied to identified habitat during the breeding season and hibernation to minimize disturbance during sensitive time periods. In the rare event that these actions would occur, conservation measures, combined with the lack of Critical Habitat and the fact that there is low potential for these minerals and associated geophysical activity to occur, would significantly reduce potential disturbance to Preble's mice and their habitat.

The control/limit of emissions; construction and initial reclamation of well pads, access roads, and reserve pits; compressor stations, product enhancement and disposal facilities; pipelines, power lines, and wind power associated with leases or units; and locatable mineral exploration and development (gold, silver, cobalt, etc.) within the minerals management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d and NL-i*) the **Canada lynx**. These actions would have an insignificant effect on these species. These activities would be extremely unlikely to occur within lynx habitat because of the low potential of most mineral activity within riparian and spruce-fir habitat. Locatable mineral exploration would be more likely to occur; however, construction activities located within 500 feet of open water and/or 100 feet of intermittent or ephemeral channels in potential and/or known habitat for Canada lynx will not occur. In potential lynx habitat (spruce/fir), the RMPPA biologists will conduct surveys (following established protocol), or assume species presence for all likely affected T&E and Special Status Species habitat or potential habitat prior to authorizing surface disturbing activities. Proposed projects will be designed and locations selected to minimize disturbances to species and habitat, and if avoidance is not possible, consultation with the Service will be initiated. At this time there are no LAUs identified on Bureau-administered lands. With the implementation of these conservation measures and the low likelihood of these types of projects in potential lynx habitat, the impacts would be discountable and/or insignificant.

Reservoirs associated with water disposal within the minerals management program M*ay Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Canada lynx**; these actions would have a beneficial effect on these species. Although these activities would be extremely unlikely to occur within spruce-fir and riparian habitat because of the low potential of associated mineral activity within this area, if they were to occur, reservoirs would benefit this species by providing an additional water source.

Power lines and wind power associated with leases or units within the minerals program *May Affect*, *and are Likely to Adversely Affect* (*LAA*) the **bald eagle**. This may cause short-term behavioral avoidance of these areas by the eagles. It may also result in the taking of eagles by vehicles during construction and/or use of the roads associated with these actions as well as other human activities. To avoid collisions and electrocution of bald eagles, any power line construction will follow recommendations by the APLIC (1994, 1996). Power lines will be placed underground and/or in locations necessary to avoid impacts to bald eagles on a case-by-case basis. Although conservation measures will be implemented, there is always the chance that an eagle could be electrocuted or collide with a line.

Construction and reclamation of well pads, access roads, and reserve pits; compressor stations, product enhancement and disposal facilities; locatable mineral exploration and development (gold, silver, cobalt, etc.); mineral material disposals (sand and gravel, decorative stone, aggregate); and geophysical exploration within the minerals management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d and NL-i*) the **bald eagle**. These actions would have an insignificant and/or discountable effect on these species. Because of the limited extent of **bald eagle** habitat within the RMPPA and implementation of the general conservation measure, "Construction activities will be avoided within 500 feet of open water and/or 100 feet of intermittent or ephemeral channels in potential and/or known habitat for T&E and Special Status Species," impacts to this species would be insignificant.

The construction and reclamation of well pads, access roads, and reserve pits; compressor stations, product enhancement and disposal facilities within the minerals management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **Wyoming toad**; these actions would have an insignificant effect on these species. There is a very low potential for mineral development within the very limited Wyoming toad habitats. Also, implementation of conservation measures would require projects to be located outside of toad habitat, thereby reducing impacts to species and their habitat. Because of implementation of the general conservation measure, "Construction activities will be avoided within 500 feet of open water and/or 100 feet of intermittent or ephemeral channels in potential and/or known habitat for T&E and Special Status Species," impacts to this species would be insignificant.

Reservoirs associated with water disposal within the minerals management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Wyoming toad**; these actions would have a beneficial effect on these species. Although the potential for mineral development within this area is very low, if a reservoir were constructed, it would provide additional habitat for the toad and benefit these species.

Application of dust control measures; construction and initial reclamation of well pads, access roads, and reserve pits; pipelines associated with leases or units; and mineral material disposals (sand and gravel, decorative stone, aggregate) within the minerals program *May Affect*, *and are Likely to Adversely Affect* (*LAA*) the **Platte River and Colorado River species**. In general, mineral development within the Platte or Colorado River systems does not allow for water depletion; however some activities, such as dust control measures, may result in a depletion of water within these watersheds. Water depletion reduces minimum flows to downstream species, resulting in loss of habitat.

The application of dust control measures, pipelines associated with leases or units, and geophysical exploration within the minerals management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d and NL-i*) the **blowout penstemon plant**; these actions would have an insignificant effect on these species. The application of dust control measures is highly unlikely to occur within sand dunes, therefore the effect of this action on the blowout penstemon is insignificant. Construction equipment used for dust control within habitat for these plants could potentially destroy individual plants. Generally, this equipment would be restricted to existing roads, therefore impacts to the plant are unlikely to occur. Constructing pipelines and permitting geophysical projects have the potential to occur within potential habitat; however, conservation measures, such as "Known habitat for the blowout penstemon plant will be open to oil and gas leasing with an NSO stipulation," and intensive management within identified populations would be applied to these actions to maintain or enhance habitat for the plant.

Construction and initial reclamation of well pads, access roads, and reserve pits; the application of dust control measures; reservoirs associated with water disposal; compressor stations, product enhancement and disposal facilities; pipelines associated with leases or units; locatable mineral exploration and development (gold, silver, cobalt, etc.); mineral material disposals (sand and gravel, decorative stone, aggregate); geophysical exploration; and power lines associated with leases or units within the minerals management program *May Affect*, *but are Not Likely to Adversely Affect* (*NL-d*) the **Colorado butterfl**y **plant** and **Ute ladies' tresses plant**; these actions would have a discountable effect on these species. Construction activity within habitat for these plants would be extremely unlikely to occur because of the low potential of mineral activity within these riparian habitats. In addition, if mineral activity were to occur, surface disturbing activities would be unlikely to be authorized within 500 feet of riparian areas, which would protect the habitat for the plants. Linear projects may cross riparian habitat, however surveys will be required prior to construction activities. If plants are identified, the project would be relocated to avoid impacts to the plants.

Off-Highway Vehicle Use

Activity Description Summary

Designate and implement closed, limited, and open areas for OHV use; post signs; permit OHV events; allow use of motorized over-the-snow vehicles (snowmobiles).

Surface disturbing and other disruptive activities associated with the OHV program include but are not limited to the following actions: (1) Designate, implement, and monitor closed area for OHV use; (2) designate, implement, and monitor limited areas for OHV use; (3) designate, implement, and monitor open areas for OHV use; (4) post signs, maps, and brochures; and (5) allow use of motorized over-the-snow vehicles.

Impact Analysis and Effects Determination

Human presence within these habitat types may effect these species by surface disturbing activities, snow compaction which alters habitat, associated snowmobile activity and increased human activity, leading to behavioral avoidance and stress to individual animals.

The designation and implementation of closed and limited areas for OHV use and allowing the use of motorized over-the-snow vehicles within the OHV use program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **black-footed ferret**. These actions would have a discountable effect on the species. Closing and designating limited areas would reduce disturbance to potential black-footed ferret habitat, because OHV use would be restricted to designated routes. In addition, where two tracks traverse prairie dog towns, there is the potential for a black-footed ferret to be hit. However, this is highly unlikely because of the nature of the ferret and its nocturnal behavior. The use of over-the-snow vehicles has the potential to occur in black-footed ferret habitat; however it is highly unlikely that this would result in the loss of a ferret because, generally, use occurs during the daylight hours when ferrets are belowground. In addition, noise from over-the-snow vehicles would cause ferrets to seek underground shelter.

The designation and implementation of closed and limited areas for OHV use within the OHV use program *May Affect*, *but is not Likely to Adversely Affect* (*NL-d*) the **Preble's meadow jumping mouse and its Critical habitat**. Closing and designating limited areas would reduce disturbance to potential mouse habitat because OHV use would be restricted to designated routes. In addition, where two tracks traverse mouse habitat, there is the potential for a mouse to be killed. Although this may occur, it is highly unlikely for this to take place.

The designation and implementation of closed and limited areas for OHV use and allowing the use of motorized over-the-snow vehicles within the OHV use program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **Canada lynx**. These actions would have a discountable effect on the species. Closing and designating limited areas would reduce disturbance to Canada lynx travel corridors because OHV use would be restricted to designated routes. In addition, where two tracks traverse lynx travel corridors, there is the potential for a lynx to be hit. However this is highly unlikely because of the secretive nature of the lynx and its rarity on Bureau-administered lands. The use of over-the-snow vehicles has the potential to occur in Canada lynx travel corridors, and human presence within these habitat types may affect these species by increased activity. This would lead to behavioral avoidance and stress to individual animals; however, it is highly unlikely that this would result in the loss of a lynx because of lynx rarity. In allowing these activities, it is very unlikely that a lynx would be encountered because of their nature; therefore impacts to this species as a result of implementing these actions are discountable.

The designation and implementation of closed and limited areas for OHV use and allowing the use of motorized over-the-snow vehicles within the OHV use program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **bald eagle**. These actions would have an immeasurable effect on the species. Closing and designating limited areas would reduce disturbance to **bald eagle** nesting and communal/winter roost sites because OHV use would be restricted to designated routes. In addition, where two tracks are located adjacent to nests and communal/winter roost sites, there is the potential for an eagle to be disturbed. The use of over-the-snow vehicles has the potential to occur in bald eagle habitat, and it is not likely that this would result in deterring eagle use of the area because the disturbance would be short-term and the eagle would return.

The designation and implementation of closed and limited areas for OHV use within the OHV use program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **Wyoming toad**. Closing and designating limited areas would reduce disturbance to potential toad habitat because OHV use would be restricted to designated routes. Where two tracks are adjacent to or cross toad habitat, there is the potential for a toad to be killed. Although this may occur, it is highly unlikely because of the small amount of habitat located on Bureau-administered lands.

The designation and implementation of closed, limited, and open areas for OHV use within the OHV use program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **blowout penstemon plant**. Closing and designating limited areas would reduce disturbance to penstemon populations because OHV use would be restricted to designated routes. Currently, the only open area is the Dune Ponds area, where no population currently exists. However this is still potential habitat, and if at some future date this area supported a population, it would then be designated an ACEC, and the OHV designation would be changed. Shifting sand dunes, which is habitat for the plant, is not conducive to the persistence of roads. The Bureau will not designate any additional open OHV use areas within this habitat; therefore, impacts to the plant would be discountable.

The designation and implementation of closed and limited areas for OHV use and allowing use of motorized over-the-snow vehicles within the OHV use program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **Colorado butterfly plant** and the **Ute ladies' tresses plant**. Closing and designating limited areas would reduce disturbance to potential plant habitat because OHV use would be restricted to designated routes. By the reducing the amount of vehicular travel, impacts to the plants are unlikely to occur.

Paleontology

Activity Description Summary

The paleontology program includes a variety of activities to preserve, protect, and restore paleontological resources. During inventories, the Bureau inventories, categorizes, and preserves resources; conducts field activities; performs excavations; maps and collects surface materials; researches records; photographs sites and paleontological resources; uses handtools, power tools, and heavy machinery. Management activities include managing sites for scientific and public uses, developing interpretive sites, implementing land use restrictions, closing areas to surface disturbing activities, preparing interpretive materials, collecting fossils, pursuing withdrawals, designating avoidance areas, and pursuing cooperative agreements.

Surface disturbing and other activities associated with the paleontology program include but are not limited to the following actions: (1) surface disturbing activities to collect specimens (handtools, power tools, heavy machinery), (2) allow collection of invertebrate fossils, (3) inventory paleontological resources, (4) develop interpretive sites, and (5) stabilize erosion (bury exposed sites) (Table 7).

Impact Analysis and Effects Determination

Surface disturbing activities to collect specimens (handtools, power tools, heavy machinery), the collection of invertebrate fossils, inventory of paleontological resources, and stabilizing erosion (bury exposed sites) within the paleontology management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **Preble's meadow jumping mouse and Critical habitat**. These actions would have an insignificant effect on these species. It is unlikely that the sites conducive for finding paleontological resources would correspond to habitat for Preble's meadow jumping mouse. Paleontological resources located in riparian areas would be partially to totally decomposed because of the moisture in this environment; therefore, impacts to this species as a result of implementing these actions would be insignificant. Surface disturbing and other disruptive activities, in the rare event that they would occur, will be intensively managed to maintain or enhance habitat for the Preble's meadow jumping mouse. Intensive management includes the use of inventory, proper distance restrictions, and seasonal or timing restrictions.

Surface disturbing activities to collect specimens (handtools, power tools, heavy machinery), the collection of invertebrate fossils, inventory of paleontological resources, and stabilize erosion (bury exposed sites) within the paleontology management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **Canada lynx**. These actions may temporarily disrupt lynx traveling from one LAU to another, however, due to the short duration of the disturbance, these actions would have an insignificant effect on the species. It is unlikely that the sites conducive for finding paleontological resources would correspond to travel corridors for the Canada lynx. Currently there are no LAUs located in the RMPPA on Bureau-administered lands. Therefore, impacts to the species as a result of implementing these actions would be insignificant.

Surface disturbing activities to collect specimens (handtools, power tools, heavy machinery), the collection of invertebrate fossils, inventory of paleontological resources, and stabilize erosion (bury exposed sites) within the paleontology management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **bald eagle**. These actions would have an insignificant effect on the species. It is unlikely that the sites conducive for finding paleontological resources would correspond to the nesting and roosting habitat for bald eagles. Conservation measures, including the use of inventory, proper distance restrictions, and seasonal or timing restrictions, would be implemented. Therefore, impacts to the species as a result of implementing these actions would be insignificant.

Recreation Resources

Activity Description Summary

Recreation management activities include allowing and improving recreation access, building and maintaining developed recreation sites, ensuring public safety, protecting the resources, assessing recreation use, managing recreation activities on Bureau lands (hiking, hunting, biking, floating, fishing, OHV use, horseback riding, backpacking, rockhounding, camping, large recreation events), recreation site development (facilities), monitoring OHV use, contacting visitors in the field, places signs, identifies hazards, restricts recreation use, conducts inventories of recreation use, monitors recreation use, develops management plans, and evaluates recreation potential.

Surface disturbing and other activities associated with the recreation resources program include but are not limited to the following actions: (1) restricting recreational use, (2) permitting competitive recreation events, (3) developing recreational trails, (4) constructing recreation sites, (5) maintain developed and undeveloped recreation sites (campgrounds), (6) place boundary signs and interpretive markers, (7) commercial recreation uses, and (8) develop public water sources for recreation facilities (Table 7).

Impact Analysis and Effects Determination

Permitting competitive recreation events, commercial recreation uses, and developing public water sources for recreation within the recreation resources program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d/NL-i*) the **black-footed ferret**. Commercial recreation (outfitters) that may take place near prairie dog towns and other ferret habitat may displace black-footed ferrets through behavioral avoidance associated with the presence of humans and their associated activities. Developing public water sources in general would not occur within prairie dog towns. If this were to occur, it would not be in prairie dog towns that qualify as black-footed ferret habitat. In addition, prairie dogs do move and have the potential into areas prior to the development of the project. If this occurs the project will be moved or a black-footed ferret survey will be completed. Permitting competitive events would have a discountable effect on these species. These activities would not be permitted within potential black-footed ferret habitat, and participants are required to remain on designated roads and trails.

Restricting recreational use within the recreation resources program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **black-footed ferret** because the Bureau would restrict use within existing black-footed ferret habitat, which would protect this species. These restrictions may include the use of closed areas and timing/seasonal stipulations, which result in reduced human presence and reduced disturbance to black-footed ferrets.

Permitting competitive recreation events, and commercial recreation uses within the recreation resources program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **Preble's meadow jumping mouse and Critical habitat**. These actions may result in the disturbance of a **Preble's meadow jumping mouse** because of increased human activity in mouse habitat. However, surface disturbing and disruptive activities will be intensively managed to maintain or enhance identified potential (within 100 meters [330 feet]of the identified 100-year flood plain) or known habitat for the **Preble's meadow jumping mouse**. Intensive management may vary from year to year and includes the use of inventory, proper distance restrictions, and seasonal or timing restrictions. Therefore these activities would have an insignificant impact on **Preble's meadow jumping mice**. Restricting recreational use within the recreation resources program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the Preble's meadow jumping mouse because the Bureau would restrict use within riparian habitat, which would protect this species. These restrictions may include the use of closed areas and timing/seasonal stipulations, which result in reduced human presence and reduced disturbance to the Preble's meadow jumping mouse.

Commercial recreation uses within the recreation resources program *May Affect*, *but is not Likely to Adversely Affect* (*NL-i*) the **Canada lynx**. These actions would have an insignificant effect on lynx. The vast majority of Bureau lands are not forested and do not contain suitable lynx habitat; therefore impacts to this species as a result of authorizing recreational activities on Bureau-administered lands would be insignificant.

Restricting recreational use within the recreation resources program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **Canada lynx** because restrictions within riparian corridors would protect this species. These restrictions may include the use of closed areas and timing/seasonal stipulations, which result in reduced human presence and reduced disturbance to lynx. In addition, there are no LAUs within the RMPPA on Bureau-administered lands.

Construction of recreation sites, maintenance of developed and undeveloped recreation sites (campgrounds), and commercial recreation uses within the recreation resources program May *Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **bald eagle**. During construction, the use of inventory, proper distance restrictions (NSO for nests and winter communal roosts), and seasonal or timing restrictions would restrict disturbance to eagles during critical time periods. Recreational activities that

occur as a result of these projects, such as camping and maintenance of recreational sites, may lead to the avoidance of roosting and nesting eagles due to increased human activity.

Restricting recreational use within the recreation resources program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **bald eagle** because restrictions within riparian corridors would protect this species. These restrictions may include the use of closed areas and timing/seasonal stipulations, which result in reduced human presence and reduced disturbance to the bald eagle.

Commercial recreation uses within the recreation resources program *May Affect*, *but is not Likely to Adversely Affect* (*NL-d*) the **Wyoming toad**. This activity may lead to the increased human use, causing trampling of toad habitat and accidental loss of toads. The habitat for this species is very limited, therefore accidental mortality and/or habitat loss are highly unlikely to occur.

Restricting recreational use within the recreation resources program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **Wyoming toad**. This action would have a beneficial effect on this species because restrictions within riparian corridors, such as the use of closed areas and timing/seasonal stipulations, resulting in reduced human presence and reduced disturbance, would protect this species.

Permitting competitive recreation events and placing boundary signs and interpretive markers within the recreation resources program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d /NL-i*) the **blowout penstemon plant**. These actions could result in the destruction of individual plants. These activities usually do not occur within actively shifting sand dunes, therefore impacts to the plant would be insignificant. Competitive events are usually restricted to designated roads and would not occur within the sand dune areas where the plants are located; therefore impacts to the plant would be discountable.

Restricting recreational use within the recreation resources program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **blowout penstemon plant**. This action would have a beneficial effect on the species because restrictions, including the use of closed areas and timing/seasonal stipulations, which result in reduced human presence and reduced disturbance within sand dunes, protect this species.

Commercial recreation uses within the recreation resources program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **Colorado butterfly plant and Critical habitat** and **Ute ladies' tresses plant**. Commercial users may lead to accidental taking of plants. Because of the limited amount of commercial recreational use, impacts to these plants would be discountable.

Restricting recreational use within the recreation resources program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **Colorado butterfly plant and Critical habitat** and the **Ute ladies' tresses plant**. This action would have a beneficial effect on these species because restrictions within riparian corridors would protect these species. Restrictions may include the use of closed areas and timing/seasonal stipulations, which result in reduced human presence and reduced disturbance to these plants.

Special Management Areas

Activity Description Summary

The SMAs program includes SRMAs, WSR management, and Wilderness management. The Bureau implements closures and restrictions to protect the resources found within these areas.

Authorization of the SMAs program includes management within the following areas: Adobe Town WSA, Prospect Mountain WSA, Encampment River Canyon WSA, Ferris Mountains WSA, Bennett

Mountains WSA, Sandhills ACEC/Proposed JO Ranch Expansion, Jep Canyon Wildlife Habitat Management Area, Shamrock Hills Wildlife Habitat Management Area, Laramie Plains Lakes Wildlife Habitat Management Area, Blowout Penstemon ACEC, Continental Divide National Scenic Trail SRMA, and North Platte River SRMA. (Table 7).

Impact Analysis and Effects Determination

Adobe Town WSA (continue present management), Sandhills ACEC/Proposed JO Ranch Expansion, Jep Canyon Wildlife Habitat Management Area, and Shamrock Hills Wildlife Habitat Management within the SMA program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **black-footed ferret**. These SMAs would be managed for wildlife species conservation and would have a beneficial effect on black-footed ferrets. Individual plans will be implemented for each area, and specific protection measures will be applied.

Adobe Town WSA (continue present management), Prospect Mountain WSA, Encampment River Canyon WSA (continue present management), Ferris Mountain WSA, Bennett Mountains WSA, Sandhills ACEC/Proposed JO Ranch Expansion, and Jep Canyon Wildlife Habitat Management Area within the SMA program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Canada lynx**. These SMAs would be managed for wildlife species conservation and would have a beneficial effect on lynx travel corridors. Individual plans will be implemented for each area, and specific protection measures will be applied. At this time there are no LAUs within the RMPPA on Bureau-administered lands.

Prospect Mountain WSA, Encampment River Canyon WSA (continue present management), Ferris Mountain WSA, Bennett Mountains WSA, Sandhills ACEC/Proposed JO Ranch Expansion, and North Platte River SRMA within the SMA program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **bald eagle**. These SMAs would be managed for wildlife species conservation and would have a beneficial effect on eagles. Individual plans will be implemented for each area, and specific protection measures will be applied.

Laramie Plains Lakes Wildlife Habitat Management Area within the SMA program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **Wyoming toad**. These SMAs would be managed for wildlife species conservation and would have a beneficial effect on the Wyoming toad. Individual plans will be implemented for each area, and specific protection measures will be applied.

The Blowout Penstemon ACEC within the SMA program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **blowout penstemon plant**. This SMA would be managed for plant species conservation and would have a beneficial effect on the plant. Individual plans will be implemented for each area, and specific protection measures will be applied.

The Laramie Plains Lakes Wildlife Habitat Management Area within the SMA program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **Colorado butterfly plant and Critical habitat**. Although no plants have been found on Bureau-administered land in this area to date, in the event that they are found, then this SMA would be managed for wildlife species conservation and would have a beneficial effect on the plant. Individual plans will be implemented for each area, and specific protection measures will be applied.

Prospect Mountain WSA, Encampment River Canyon WSA (continue present management), Ferris Mountain WSA, Bennett Mountains WSA, Sandhills ACEC/Proposed JO Ranch Expansion, Jep Canyon Wildlife Habitat Management Area, Shamrock Hills Wildlife Habitat Management Area, Laramie Plains Lakes Wildlife Habitat Management Area, Blowout Penstemon ACEC, and North Platte River SRMA

within the SMA program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Ute ladies' tresses plant**. These SMAs would be managed for wildlife species conservation and would have a beneficial effect on the plant. Individual plans will be implemented for each area, and specific protection measures will be applied. There will be an NSO stipulation applied to known habitat for the plant for oil and gas leasing, grazing will be intensively managed, recreation sites will not be developed in known habitat for the plant, and projects will be redesigned to ensure that adverse effects to the plant do not occur. These measures that are applied to authorized actions that may occur within the SMA program areas will reduce and/or eliminate potential impacts to the Ute ladies'-tresses plant.

Transportation and Access Management

Activity Description Summary

The transportation and access management program and associated activities are generally in support of other resource management programs. The Bureau rehabilitates access roads no longer needed, proposes access easement acquisitions, and pursues legal access across private and state lands.

Surface disturbing and other activities associated with the transportation and access management program include but are not limited to the following actions: acquiring access easements (Table 7).

Impact Analysis and Effects Determination

Acquisition of access easements within the transportation and access management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-d*) the **black-footed ferret**. Acquisition of access easements that will traverse potential black-footed ferret habitat (i.e., prairie dog towns) may cause a loss of a ferret from collisions with vehicles and an indirect disturbance from human activities. Because of the nocturnal behavior of ferrets, the chance of this is highly unlikely. Acquisition of access easements will open new areas to the public that may expose black-footed ferret habitat (prairie dog towns) to additional use. Although towns may be exposed, most users are on the roads during the daylight hours, which should not disturb or disrupt the nocturnal black-footed ferret. Although many black-footed ferret surveys have been completed within the RMPPA for proposed projects, no ferrets or their sign have been observed, except in the Shirley Basin area. Two skulls have been found, one in the RMPPA and one in the Rock Springs Field Office, but the age of the skulls has been debated by several specialists, and agreement on the exact age has not been established. This may increase the "target shooting" of prairie dogs in these new areas, which would reduce the prey source for black-footed ferret and reduce the overall quality of their habitat. Overall, shooting has not been shown to have a negative impact to the prey base.

Acquisition of access easements within the transportation and access management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-d*) the **Preble's meadow jumping mouse and Critical habitat**. Acquisition of access easements that traverse potential Preble's meadow jumping mouse and their Critical habitat may cause the loss of a mouse from vehicles and an indirect disturbance from human activities. The likelihood of a mouse being on an access road when a vehicle passes is very remote, especially because mice tend to move from moving objects, such as a vehicle, and people.

Acquisition of access easements within the transportation and access management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-i*) the **Canada lynx**. Although easements increase public access, and there is a slight possibility of disturbance to a lynx within travel corridors, this action would have an insignificant effect on this species because of its secretive nature. At this time there are no LAUs present within the RMPPA, and actual travel corridors have not been identified.

Acquisition of access easements within the transportation and access management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-i*) the **bald eagle**. Although easements increase public access, and there is a slight possibility of disturbance to an eagle, this action would be short-term, and birds should return. There are only six known active bald eagle nests located within the RMPPA, and it is highly unlikely that the Bureau will authorize an access road that traverses within 1,200 feet of an active bald eagle nest.

Acquisition of access easements within the transportation and access management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-d*) the **Wyoming toad**. Acquisition of access easements that traverse potential toad habitat may cause the loss of a toad from vehicles and an indirect disturbance from human activities. The likelihood of a Wyoming toad being on an access road when a vehicle passes is very remote, especially because toads tend to be located within riparian habitat during most of the year. Toads winter in the uplands near riparian habitat, and although they may move across a two-track or road, it is highly unlikely that they would be run over because of the small number of people that may be driving in the area.

Acquisition of access easements within the transportation and access management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-d*) the **blowout penstemon plant**, **Colorado butterfly plant and Critical habitat**, and **Ute ladies' tresses plant**. Acquisition of access easements that traverse potential plant habitat may cause the loss of a plant from vehicles, however there will be an NSO stipulation applied to known habitat for the plants for oil and gas leasing, grazing will be intensively managed, recreation sites will not be developed in known habitat for the plants, and projects will be redesigned to ensure that adverse effects to the plants do not occur. These measures that are applied to authorized actions that may occur within the SMA program areas will reduce and/or eliminate potential impacts to the blowout penstemon plant, Colorado butterfly plant, and the Ute ladies'-tresses plant.

Vegetation Management

Activity Description Summary

Maintain or improve the diversity of plant communities to support multiple use for such programs as livestock management, wildlife habitat management, forest management, watershed management, and VRM. In addition, the vegetation management program works to control the spread of noxious and invasive weeds and the protection of important habitats for Special Status plants Species.

Surface disturbing and other disruptive activities associated with the vegetation program (including noxious and invasive weed control) include but are not limited to the following actions: (1) implement planting and seeding; (2) use biological controls, including species-specific insects and livestock grazing, (3) use of light mechanical control, including cutting and thinning with handtools; (4) use of heavy mechanical control, including brushbeating, cutting, and thinning with machinery; and (5) use chemical control (including aerial).

Impact Analysis and Effects Determination

The implementation of planting and seeding, the use of biological controls (including species-specific insects and livestock grazing), the use of light mechanical control (including cutting and thinning with handtools), the use of heavy mechanical control (including brushbeating, cutting, and thinning with machinery), and the use of chemical control (including aerial spraying) within the vegetation program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d/NL-i*) the **black-footed ferret**. These activities within or adjacent to white-tailed and black-tailed prairie dog towns could displace or impact a black-footed ferret that was missed during surveys. However, if prairie dog towns/complexes suitable as black-

footed ferret habitat are present at the proposed project level, attempts will be made to locate all project components at least 164 feet (50 m) (up to 656 feet [200 m] pursuant to FLPMA) from these towns/complexes to avoid direct impact to towns. All white-tailed prairie dog towns/complexes greater than 200 acres in size and black-tailed prairie dog towns/complexes greater than 80 acres will be avoided. If avoidance is not possible, these areas will be assessed and mapped at the proposed project level. Associated burrow densities of potentially affected towns will be determined, and when habitat is present, a black-footed ferret survey will be conducted pursuant to Service- and Bureau-approved techniques. Activities will not occur unless there are no ferret or ferret sign present. To date there have been numerous black-footed ferret surveys completed within the RMPPA for proposed projects, and no ferrets or their sign have been observed, except in the Shirley Basin.

The use of biological controls (including species-specific insects and livestock grazing) within the vegetation management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-d*) the **Preble's meadow jumping mouse and its Critical habitat**. Use of biological controls, including species-specific insects and livestock grazing, within Preble's meadow jumping mouse habitat and their Critical habitat may have a discountable impact from the loss of a mouse or the removing of forage and cover required for the mouse. Surface disturbing and other disruptive activities will be intensively managed to reduce and/or eliminate impacts to the mouse. In addition timing and distance restrictions will be applied to identified habitat during the breeding season and hibernation to minimize disturbance during sensitive time periods.

Implementing planting and seeding of sites within the vegetation management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **Preble's meadow jumping mouse and its Critical habitat**. These activities will be intensively managed to maintain or enhance identified potential habitat (within 100 meters [330 feet] of the identified 100-year flood plain) or known habitat for the Preble's meadow jumping mouse. Intensive management may vary from year to year and includes the use of inventory, proper distance restrictions, and seasonal or timing restrictions to minimize disturbance for the mouse during sensitive time periods. In general these actions would improve habitat for the species.

Implement planting and seeding, the use of light mechanical control (including cutting and thinning with handtools), the use of heavy mechanical control (including brushbeating, cutting, thinning), and the use of chemical control (including aerial spraying) within the vegetation management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **Canada lynx**. These actions would have an insignificant effect on lynx using travel corridors because of the secretive nature of the species. At this time there are no LAUs present within the RMPPA, and actual travel corridors have not been identified. Noise and human activity associated with these activities are short-term in nature.

The use of biological controls (including species-specific insects and livestock grazing), the use of light mechanical control (including cutting, thinning with handtools), and the use of heavy mechanical control (including brushbeating, cutting, and thinning with machinery), and the use of chemical control (including aerial spraying) within the vegetation management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **bald eagle**. These actions would have an insignificant effect on these species. Noise and human activity associated with these activities are short-term in nature. During these activities, the use of inventory, proper distance restrictions (NSO for nests and winter communal roosts), and seasonal or timing restrictions would reduce disturbance to eagles during critical time periods.

Implement planting and seeding within the vegetation management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **bald eagle**. This action would have a beneficial effect on these species by improving future nesting habitat with the planting of vegetation. During these activities, the use of inventory, proper distance restrictions (NSO for nests and winter communal roosts), and seasonal or timing restrictions would reduce disturbance to eagles during critical time periods.

The use of biological controls (including species-specific insects and livestock grazing), the use of light mechanical control (including cutting, thinning with handtools), and the use of heavy mechanical control (including brushbeating, cutting, and thinning with machinery) within the vegetation management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i/NL-d*) the **Wyoming toad**. The use of insects and/or goats for noxious and invasive weed control may be authorized, but the probability of a goat stepping on a Wyoming toad is very remote, and the insects would be studied and used only if it is determined that negative effects to toads would not occur. Mechanical control may alter the toads' habitat by reducing hiding cover temporarily; however, equipment would not be authorized or used within 500 feet of riparian habitat, which would reduce impacts to the toad. In the event that equipment would be required, then surveys would be completed and actions authorized only if the species were not present. The reduction of noxious and invasive weeds within the area of disturbance would in the long-term improve toad habitat. Equipment activity and the use of livestock as a biological control would displace or potentially cause the loss of a toad.

The implementation of planting and seeding, and the use of biological controls (including species-specific insects and livestock grazing) within the vegetation management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **blowout penstemon** plant. These actions are highly unlikely to occur in sand dune habitat and as such would have a discountable effect on these species. Intensive management, including the use of proper distance and timing restrictions, would reduce impacts during the reproductive time period for the plant. Biological control of noxious/invasive plant species will be prohibited in blowout penstemon habitat until the impacts of the control agent has been fully evaluated and determined not to adversely affect the plant population. BLM will monitor biological control vectors.

The implementation of planting and seeding, the use of biological controls (including species-specific insects, livestock grazing), and the use of light mechanical control (including cutting, thinning with handtools) within the vegetation management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i/NL-d*) the **Colorado butterfly plant and Critical habitat**, and **Ute Ladies' tresses plant**. Planting and seeding for habitat improvement and reclamation along riparian habitats would possibly lead to direct loss of the species through trampling from increased human activity or may lead to indirect loss from increased competition from other plant species. This is highly unlikely because the area would be surveyed prior to project implementation in potential habitat, and if plants are present, then the project would be modified to reduce disturbance and/or not authorized. The use of light mechanical control within riparian habitats where either Colorado butterfly plant or Ute ladies' tresses may occur, would possibly lead to loss of the species though surface disturbing activities. This is highly unlikely because the area would be surveyed prior to project implementation in potential habitat, and if plants are present, then the project would be modified to reduce disturbance and/or not authorized. The use of grazing animals for biological controls would possibly lead to direct loss or injury to a plant, through trampling or consumption from livestock, and from increased human activity. However, sites where the plants occur would be identified through surveys, and these areas would be off-limits to the use of grazing animals through temporary fencing. Biological control of noxious/invasive plant species will be prohibited in Colorado butterfly plant and its Critical habitat, as well as Ute Ladies' tresses habitat until the impacts of the control agent has been fully evaluated and determined not to adversely affect the plant population. BLM will monitor biological control vectors.

Visual Management

Activity Description Summary

The Bureau maintains or improves scenic values and visual quality, establishes VRM priorities in conjunction with other resource values, completes visual resource inventories and classification processes.

Activities associated with the visual program require facilities to blend with the natural environment (Table 7).

Impact Analysis and Effects Determination

Requiring facilities to blend with the natural environment (using colors which blend with the background, and topographic screening to reduce visual impacts) within the visual management program would have no effect, no jeopardy, or no impact to any of the species listed in this BA.

Water Quality, Watershed and Soils Management

Activity Description Summary

The Bureau performs a variety of activities designed to preserve and protect soil, water, and watershed quality. Some of these activities are implementation of watershed plans, identification of heavy sediment loads, monitoring and minimizing of soil erosion, evaluating and restricting surface development activities, and monitoring water quality. These activities at times involve field activities and the use of heavy equipment and handtools.

Through water resource management, the Bureau seeks to maintain or improve surface and groundwater quality consistent with existing and anticipated uses and applicable state and federal water quality standards, provide for the availability of water to facilitate authorized uses, and to minimize harmful consequences of erosion and surface runoff. Water resources are also to be protected or enhanced through site-specific mitigation guidelines.

During watershed management activities, the Bureau develops pollution prevention plans, ensures that water rights are filed for water-related projects, designs activities to reduce channel erosion, and restores damaged wetlands or riparian areas. The Bureau also provides technical expertise on other activities, such as livestock ponds and waterfowl monitoring activities, and provides impact analyses of oil and gas development or any surface disturbance projects. The Bureau provides technical expertise in reestablishing floodplains or other disturbed sites.

Surface disturbing and other activities associated with the water quality, watershed, and soils management program include but are not limited to the following actions: (1) Allow for surface discharges of produced water; (2) Restrict surface disturbance near water resources and sensitive soils; (3) Limit surface disturbance and prohibit new permanent structures in the Encampment River watershed; (4) Close areas, including roads, where accelerated erosion is occurring; (5) Install stream crossings for appropriate sediment and flow passage (culverts, bridges); (6) Develop riparian/wetland exclosures; (7) Channel restoration using heavy equipment; and (8) Cutting, planting, and seeding to restore function in riparian/wetland areas.

Impact Analysis and Effects Determination

Closing areas, including roads, where accelerated erosion is occurring, within the Water Quality, Watershed and Soils Management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **black-footed ferret**. This activity will reduce human presence and allow for habitat restoration in areas of accelerated erosion.

Allowing surface discharge of produced water from oil and gas activities, installing stream crossings for appropriate sediment and flow passage (culverts, bridges), authorizing channel restoration using heavy equipment and developing riparian/wetland exclosures within the Water Quality, Watershed and Soils

Management program *May Affect*, *and are Not Likely to Adversely Affect* (*NL-i, NL-d*) the **Preble's meadow jumping mouse**. Where discharges take place in conjunction with Preble's habitat, it could affect the vegetation and function of riparian systems where Preble's occur. Depending on the method of surface discharge, small streams or creeks would most likely be impacted, however habitat along larger rivers, such as the Laramie River, would not be impacted. For pipelines, communication systems, and other large-scale projects, the Bureau requires boring under large perennial streams and rivers, and occasionally smaller perennial streams. In general, land ownership along larger rivers, such as the Laramie River, are non-federal or privately owned, and very few, if any, projects along these riparian habitats are federally authorized. These impacts would be channel readjustment, which could make banks unstable and would result in temporary loss of riparian plants in these locations. If water tables are raised with channel stability, the overall health of riparian systems could be improved in some locations. Surface discharge in some cases will change the local hydrologic condition, but impacts to the species and habitat will be considered when determining discharge locations. The use of motorized equipment and human activity associated with channel restoration may affect Preble's meadow jumping mice during construction activities; however, the use of timing stipulations and conservation measures will be implemented to reduce and or eliminate these impacts. The remaining activities improve the health and function of riparian habitat in the long-term. In the short-term there may be minimal impacts to this species from human activity and construction; however, surface disturbing and other disruptive activities will be intensively managed (500 foot riparian buffer) to maintain or enhance identified potential (within 100 meters [330 feet] of the identified 100-year flood plain) or known habitat for the Preble's meadow jumping mouse. These activities are NLAA **Prebles meadow jumping mouse and its Critical habitat** because intensive management will be implemented, including conservation measures, and these projects will be very limited in its Critical habitat. Intensive management may vary from year to year and may include the use of inventory, proper distance restrictions, and seasonal or timing restrictions.

Restrict surface disturbance near water resources in sensitive soils, close areas (including roads where accelerated erosion is occurring); and cutting, planting, and seeding to restore function in riparian/wetland areas within the Water Quality, Watershed and Soils Management program *May Affect*, *and are Not Likely to Adversely Affect* (*NL-b*) the **Preble's meadow jumping mouse and its Critical habitat**. These activities will improve the habitat for this species in the long-term and will reduce disturbance to the animals and their habitat.

Installing stream crossings for appropriate sediment and flow passage (culverts, bridges); channel restoration using heavy equipment; and cutting, planting, and seeding to restore function in riparian/wetland areas within the Water Quality, Watershed and Soils Management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **Canada lynx**. These actions would have an insignificant effect on these species. These activities could result in temporary displacement of Canada lynx using riparian areas as travel corridors.

The Bureau's commitment to restricting surface disturbance near water resources, limiting and/or prohibiting surface disturbance and new permanent structures, closing areas (including roads where accelerated erosion is occurring) within the Encampment River watershed within the Water Quality, Watershed and Soils Management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Canada lynx**. These actions would have a beneficial effect on these species. Most of these actions improve habitat used as travel corridors or for hunting where they occur in high elevations suitable for Canada lynx.

Allowing for surface discharge of produced water, and developing riparian/wetland exclosures within the Water Quality, Watershed and Soils Management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **bald eagle**. In some cases the discharge of water would provide additional flow to surface waters and could improve the health of some riparian systems. The construction and equipment

use for riparian/wetland exclosures could have surface disturbing impacts in riparian areas in the short-term; however, long-term impacts would improve the habitat for bald eagles. During construction, the use of inventory, proper distance restrictions (NSO for nests and winter communal roosts), and seasonal or timing restrictions would restrict disturbance to eagles during critical time periods.

The restriction of surface disturbance near water resources and sensitive soils; limiting surface disturbance and prohibiting new permanent structures in the Encampment River watershed; closing areas, including roads where accelerated erosion is occurring; installing stream crossings for appropriate sediment and flow passage (culverts, bridges); channel restoration using heavy equipment; and cutting, planting, and seeding to restore function in riparian/wetland areas within the Water Quality, Watershed, and Soils Management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **bald eagle**. These actions would have a beneficial effect on these species. During construction, the use of inventory, proper distance restrictions (NSO for nests and winter communal roosts), and seasonal or timing restrictions would restrict disturbance to eagles during critical time periods. These actions would improve the physical conditions and water quality in areas where they occur and therefore would generally be beneficial for bald eagle habitat.

Channel restoration using heavy equipment within the Water Quality, Watershed and Soils Management program *May Impact*, *but is not likely to contribute to the need for federal listing* (*MI*) of the **Western yellow-billed cuckoo**. Impacts would largely be concentrated in the channel; however where restoration activities occur, there could be some impacts to the uplands adjacent to the stream. There could be some temporary habitat loss from inundation to cottonwood/willow communities and surface disturbance if these projects occurred within habitat used by the Western yellow-billed cuckoo. Habitat loss is expected to be minimal or nonexistent because of the Bureau's commitment to timing and special restrictions identified in conservation measures for the **Western yellow-billed cuckoo**. In addition, the RMPPA contains very little habitat for the species west of the Divide, and because of the scarcity of this habitat, it is highly unlikely to implement projects within this limited habitat. There could be potential new habitat created by increasing the water table in some areas, making it more suitable for willow establishment.

Installing stream crossings for appropriate sediment and flow passage (culverts, bridges), developing riparian/wetland exclosures, and channel restoration using heavy equipment within the Water Quality, Watershed, and Soils Management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i/NL-d*) the **Wyoming toad**. This activity is not likely to affect the **Wyoming toad**, because it is highly unlikely that a project would occur in existing known habitat, and the Bureau does not have jurisdiction over occupied habitat. The Bureau does manage lands that could be potential reintroduction sites. Within these areas the Bureau would use conservation measures to minimize any impacts to **Wyoming toads**. The use of conservation measures will reduce and/or minimize and make highly unlikely any adverse effects to **Wyoming toads**.

Restricting surface disturbance near water resources and sensitive soils; and closing areas, including roads, where accelerated erosion is occurring within the Water Quality, Watershed and Soils Management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Wyoming toad**. This activity is not likely to adversely affect **Wyoming toad** because there would only be beneficial effects. These actions would have a beneficial effect on toads by reducing surface disturbance in habitat for the Wyoming toad. Construction activities located within 500 feet of open water and/or 100 feet of intermittent or ephemeral channels in potential and/or known toad habitat will be avoided.

The construction of artificial instream structures using heavy equipment within the Water Quality, Watershed, and Soils Management program *May Affect*, *and is Likely to Adversely Affect* (*LAA*) the **Platte River and Colorado River species**. These activities could result in a depletion of water to the Platte

River system and would have an indirect negative impact on identified downstream species. Water depletion reduces minimum flows to downstream species, resulting in loss of habitat.

Closing areas, including roads where accelerated erosion is occurring, within the Water Quality, Watershed and Soils Management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **blowout penstemon plant**. This action would have a beneficial effect on this species. Reducing surface disturbance in locations where this plant occurs would generally benefit the success of individuals. Natural disturbance from active dunes is part of the life history of these plants and sufficient to meet the needs of this species.

Allowing for surface discharges of produced water; installing stream crossings for appropriate sediment and flow passage (culverts, bridges); developing riparian/wetland exclosures; channel restoration using heavy equipment; and cutting, planting, and seeding to restore function in riparian/wetland areas within the Water Quality, Watershed, and Soils Management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i/NL-d*) the **Colorado butterfly plant and Critical habitat**, and **Ute Ladies' tresses** plant. These activities are not likely to adversely affect these species, or Critical habitat of **Colorado butterfly plant**, because of the Bureau's commitment to conservation measures in areas where the species may occur. At this time no known populations currently occur on Bureau-administered surface lands. Surveys will be conducted on potential habitat, and conservation measures will be implemented on any proposed project in areas where surveys identify the plants for Bureau-administered actions. Developing riparian/wetland exclosures excludes grazing and would have beneficial impacts to some individual plants. Surface discharge could potentially improve hydrologic conditions for these species.

Restricting surface disturbance near water resources and sensitive soils, and closing roads and areas where accelerated erosion is occurring within the Water Quality, Watershed, and Soils Management program *May Affect*, *but are not Likely to Aversely Affect* (*NL-b*) **Colorado butterfly plant and Critical habitat**, and **Ute Ladies' tresses plant**. These actions would have a beneficial effect on these species. Reducing surface disturbance in locations where this plant occurs would generally benefit the success of individuals.

Limiting surface disturbance and prohibiting new permanent structures in the Encampment River watershed within the Water Quality, Watershed, and Soils Management program *May Affect*, *but are not Likely to Aversely Affect* (*NL-b*) the **Ute Ladies' tresses plant**. These actions would have a beneficial effect on these species by limiting the surface disturbance and therefore the negative impacts to individuals where these actions would have occurred.

Wildlife and Fish Habitat Management

Activity Description Summary

Through the wildlife and fisheries habitat management program, the Bureau maintains and enhances habitat for a diversity of wildlife and fish species and provides habitat for threatened, endangered, candidate, proposed, and Special Status animal and plant Species in compliance with the ESA and approved recovery plans. In addition, the Bureau wildlife habitat management program supports population objective levels in the WGFD strategic plan.

Activities associated with the wildlife and fish program include but are not limited to the following actions: (1) predator control (cooperation with APHIS), (2) construction of artificial structures for raptors, (3) guzzler development, (4) modify fences, (5) develop islands, (6) road closure (permanent/seasonal),

(7) construct exclosures, (8) construct reservoirs and pits, (9) chemically remove non-native fish species, and (10) remove or replace barriers to fish passage (e.g., culverts, instream structures).

Impact Analysis and Effects Determination

Predator control (in cooperation with APHIS) within the wildlife and fish program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **black-footed ferret.** If ferrets were present at an animal damage control site, they could conceivably be trapped, shot, snared, gassed, or poisoned. Also, they could suffer secondary or indirect effects from having their prey populations reduced. The likelihood of these impacts is extremely rare, but possible. Predator control activities may also occur, and if this occurred on a prairie dog town and there was a population of yet undiscovered ferrets, there is the very unlikely potential for a ferret to be a non-target victim. However, the likelihood of this series of occurrences is very low and the USDA-Animal Plant Inspection Service/Wildlife Service is the lead federal agency conducting animal control (ADC) and will consult with the USFWS prior to any ADC activities.

Construction of artificial nesting structures for raptors, guzzler development, modify fences, and construction of reservoirs and pits within the wildlife and fish management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i/NL-d*) the **black-footed ferret**. In the RMPPA, the majority of the artificial nesting structures are used by ferruginous hawks which prey primarily on ground squirrels; there are a small number of artificial nesting structures used by golden eagles that consume both ground squirrels and prairie dogs. Although there is potential for ferret occurrence with the RMPPA, to date there have been no wild populations of ferrets found (only the Shirley Basin nonessential experimental population). Although raptors use these structures, they are not placed near prairie dog towns, and the benefit raptors find from using these structures is very small. Prairie dog numbers do not indicate significant loss due to raptor predation, therefore it is unlikely to adversely affect the black-footed ferret. The development of guzzlers does not occur within prairie dog towns, therefore impacts would not likely adversely affect the **black-footed ferret**. In addition, the development of reservoirs and pits also does not occur within prairie dog towns, therefore impacts to **the black-footed ferret** would not occur. There are occasions where prairie dogs move into dried reservoirs and/or pits, these become inundated and could affect those prairie dogs. However, this impact would be small in scale and would not impact the **black-footed ferret**. Fence modification is not likely to adversely affect the black-footed ferret because these are short-term activities, occurring during the day and along existing fence lines. These projects generally involve the use of few vehicles moving along existing fences, wire stretching activities, then moving on. It is highly unlikely that a prairie dog and/or **black-footed ferret** would be killed or injured during these procedures.

Road closure (permanent/seasonal) within the wildlife and fish management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **black-footed ferret**. Road closures reduce and/or eliminate human activity, temporary displacement, and possible harm and/or death of a ferret.

Modification of fences; construction of exclosures, construction of reservoirs and pits, chemically remove non-native fish species, removing or replacing barriers to fish passage (e.g., culverts, instream structures) within the wildlife and fish management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i/NL-d*) the **Preble's meadow jumping mouse and its Critical habitat**. Construction of reservoirs and pits, and human presence may temporarily displace or result in the loss of a mouse during construction; however, the use of conservation measures would minimize and/or prevent this loss. In the last 10 years there have been no construction of reservoirs and/or pits, chemical removal of non-native fish species, and removal or replacement of barriers to fish passage within known or potential **Prebles meadow jumping mouse** habitat, and it is not expected to occur throughout the life of the RMP. The use of conservation measures for fence and exclosure construction, such as timing stipulations, is expected to prevent displacement of the mouse. Maintenance of fences includes the use of 1 or 2 hours of activity per

location (including vehicles, human presence, use of handtools and wire) and is highly unlikely to affect the fitness of a **Prebles meadow jumping mouse**, therefore there would be no adverse effects. In the short-term there may be minimal impacts to this species from human activity and construction; however, surface disturbing and other disruptive activities will be intensively managed to maintain or enhance identified potential (within 100 meters [330 feet] of the identified 100-year flood plain) or known habitat for the **Preble's meadow jumping mouse**.

Road closures (permanent/seasonal) within the wildlife and fish management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Preble's meadow jumping mouse and its Critical habitat**. These actions would have a beneficial effect on this species by closing areas and reducing vehicle access, thereby minimizing human presence and creating undisturbed habitat for mouse. Areas closed permanently would also create additional habitat over the long-term as the roads revegetated.

Predator control (in cooperation with APHIS) within the wildlife and fish program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **Canada lynx.** If lynx were present at an animal damage control site, they could conceivably be trapped, shot, snared, gassed, or poisoned. Also, they could suffer secondary or indirect effects from having their prey populations reduced. The likelihood of these impacts is extremely rare, but possible. Predator control activities may also occur within lynx habitat; however, there is the very unlikely potential for a lynx to be a non-target victim. However, the likelihood of this series of occurrences is very low and the USDA-Animal Plant Inspection Service/Wildlife Service is the lead federal agency conducting animal control (ADC) and will consult with the USFWS prior to any ADC activities.

Road closures (permanent/seasonal), construct reservoirs and pits within the wildlife and fish management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Canada lynx**. These actions would have a beneficial effect on this species by closing areas and reducing vehicle access, thereby minimizing human presence and creating undisturbed habitat for lynx.

Predator control (in cooperation with APHIS) within the wildlife and fish program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **bald eagle.** If **bald eagles** were present at an animal damage control site, they could conceivably be trapped, shot, snared, gassed, or poisoned or could become unintentional, non-target victims of ADC activities, especially through secondary poisoning of unretrieved baited carcasses. Also, they could suffer secondary or indirect effects from having their prey populations reduced. The likelihood of these impacts is extremely rare, but possible. Predator control activities may also occur within **bald eagle** habitat; however, there is the very unlikely potential for a bald eagle to be a non-target victim. However, the likelihood of this series of occurrences is very low and the USDA-Animal Plant Inspection Service/Wildlife Service is the lead federal agency conducting animal control (ADC) and will consult with the USFWS prior to any ADC activities. The use of traps and snares for target species (i.e., coyotes) could accidentally injure or kill a **bald eagle**. Additionally, some indirect impacts to the bald eagle may occur through loss of prey species as a result of rodent control actions.

Modifying fences, developing islands, constructing reservoirs and pits, chemically removing non-native fish species, and remove or replace barriers to fish passage (e.g., culverts, instream structures) within the wildlife and fish management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **bald eagle**. Fish, native and non-native, compose a significant portion of a bald eagle's diet. The loss of fish populations and the associated macroinvertebrates they feed upon, through chemical treatment of water to remove non-native fish, may force **bald eagles** to select other foraging areas. The modification of fences, development of islands, construction of reservoirs and pits, and the removal or replacement of barriers to fish passage would cause temporary displacement of eagles from human and equipment presence. There is limited bald eagle nesting habitat located within Bureau-administered lands, and it is very unlikely that these activities would occur within nesting habitat. If activities occur, the use of conservation measures

will be applied to activities to reduce and/or eliminate any potential impacts to nesting **bald eagles**. However, development of islands and reservoirs would have a long-term beneficial impact by providing improved habitat.

Construction of artificial structures for raptors within the wildlife and fish management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **bald eagle**. Structures would be installed away from active nests and outside critical time periods for the eagle. These structures would expand use areas for the eagle.

Construction of reservoirs, pits, and exclosures within the wildlife and fish management program *May Affect*, *but is not Likely to Adversely Affect* (*NL-i/NL-d*) the **Wyoming toad**. These activities are not likely to affect the **Wyoming toad** because it is highly unlikely that a project would occur in existing known habitat, and the Bureau does not have jurisdiction over occupied habitat. The Bureau does manage lands that could be potential reintroduction sites. Within these areas the Bureau would use conservation measures to minimize any impacts to **Wyoming toads**. The use of conservation measures will reduce and/or minimize and make highly unlikely any adverse effects to **Wyoming toads**.

Road closures (permanent/seasonal) within the wildlife and fish management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **Wyoming toad**. This action would have a beneficial effect on this species by closing areas and reducing vehicle access, thereby minimizing human presence and creating undisturbed habitat for the toad.

The construction of reservoirs and pits within the wildlife and fish management program *May Affect*, *and is Likely to Adversely Affect* (*LAA*) the **Platte River Species and the Colorado River Species**. The construction of reservoirs and pits may affect Platte River and Colorado River species directly from water depletion. Also, the increased surface area of these developments will lead to increased evaporative loss of water, thereby causing additional depletions to the systems.

Modifying fences and constructing exclosures within the wildlife and fish management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-d*) the **blowout penstemon plant**. Vehicle use and human presence during modification activities may result in the loss of an individual plant; however, the likelihood of this is remote because of the number of actual fences located within or near habitat and the ability for the Bureau to implement conservation measures, to reduce and/or eliminate impacts to the plant within potential or known habitat.

Road closures (permanent/seasonal), within the wildlife and fish management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-b*) the **blowout penstemon plant**. This action would have a beneficial effect on this species by closing areas and reducing vehicle access, thereby minimizing human presence and protecting habitat for the plants.

Modifying fences, constructing exclosures, reservoirs, and pits within the wildlife and fish management program *May Affect*, *but are not Likely to Adversely Affect* (*NL-i/NL-d*) the **Colorado butterfly plant and its Critical habitat** and **Ute ladies' tresses plant**. These activities are not likely to adversely affect these species, or **Critical habitat of Colorado butterfly plant** because of the Bureau's commitment to conservation measures in areas where the species may occur. At this time, no known populations currently occur on Bureau-administered surface lands. Surveys will be conducted on potential habitat, and conservation measures will be implemented on any proposed project in areas where surveys identify the plants for Bureau-administered actions.

Closing roads (permanent/seasonal) within the RMPPA *May Affect*, *but is not Likely to Adversely Affect* (*NL-b*) the **Colorado butterfly plant** and **Ute ladies' tresses plant**. This action would have a beneficial

effect on this species by closing areas and reducing vehicle access, thereby minimizing human presence and protecting habitat for the plants.

Wild Horse Management

Activity Description Summary

The Bureau wild horse program uses herding; corralling; transporting; monitoring; and roundups, which uses traps (temporary and permanent corrals), helicopters, and wranglers during roundups for wild horse management. The program considers range capability, trends in utilization, and public support.

Surface disturbing and other disruptive activities associated with the wild horse management program include but are not limited to the following actions: (1) construction of short-term temporary facilities (traps and holding facilities), (2) construction of long-term permanent facilities (corrals, boundary fences, water development), (3) and gatherings using helicopters and riders (Table 7).

Impact Analysis and Effects Determination

Construction of long-term permanent facilities (boundary fences or water development) *May Affect*, *but is not Likely to Adversely Affect* (*NL-i*) the **black-footed ferret**. The development of reservoirs and pits for wild horse programs does not occur within prairie dog towns, therefore impacts to the **black-footed ferret** would not occur. There are occasions where prairie dogs move into dried reservoirs and/or pits, these become inundated and could affect those prairie dogs. However this impact would be small in scale and would not impact the **black-footed ferret**. Construction of long-term permanent facilities (boundary fences) is not likely to adversely affect the black-footed ferret because construction phase is short-term, occurring during the day. It is highly unlikely that a prairie dog and/or **black-footed ferret** would be killed or injured during these procedures.

Gatherings using helicopters and riders *May Affect*, *but are not Likely to Adversely Affect* (*NL-i*) the **bald eagle**. These would potentially disturb an eagle in the vicinity of the gather, but the bird should return upon completion of this short-term activity. However, surface disturbance or other disruptive activities potentially disruptive to nesting bald eagles will be prohibited within 1 mile of a bald eagle nest during the period of February 1 and July 15 for the protection of nesting areas. Also, there are no herd management areas (HMA) within 2.5 miles of any known nest, which further reduces the possibility of disturbing an eagle from this activity.

Cumulative Effects

Cumulative effects according to ESA include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BA. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. This is different from NEPA cumulative effects.

The Bureau is the majority landowner in the western portion (Carbon County) of the RMPPA, but is a minority landowner in the eastern portion (Albany and Laramie counties). The Bureau does control the majority of public access to the western portion of the RMPPA, while it only controls limited access in the eastern portion. In the eastern portion of the RMPPA, the cumulative impacts of Bureau actions that would be taken under these alternatives are minor in proportion to potential impacts from actions on state and private lands. The wildlife habitat values of the public land parcels are important as undeveloped areas, usable by certain wildlife species (particularly T&E and Special Status Species) that are located mostly on the Bureau parcels.

The exact cumulative effect on T&E species is not known because of the lack of specific information on future state, local, or private actions in the RMPPA. Since most impacts to Special Status Species are human-related (e.g., recreational use) or the result of human activities (e.g., livestock management, mineral development, housing development), and the human pressures in the RMPPA may be expected to change over the foreseeable future, the scope and scale of the impacts are not known.

The cumulative effects of actions under these Bureau programs and their activities may have local impacts to populations. If this occurs, then a determination of "May Affect" as the cumulative effect is obligatory. This would result in a request for a special consultation with the Service to ensure that appropriate analysis is conducted to minimize impacts to a species.

Analysis for T&E species will include no loss of Critical habitats or their function. "Habitat function" means the arrangement of habitat features, and the capability of those features to sustain species, populations, and diversity of wildlife over time (a quantitative measure of habitat). Sites warranting this level of protection cannot be replaced or mitigated. Other extremely significant sites or habitats may also be designated irreplaceable. Recommendations to include additional sites within this category will be evaluated on a case-by-case basis and must be approved by the Service.

Where noncritical but crucial habitats are present, and restoration or replacement may not be possible, analysis must be within the same location, have the same essential features, and support the same species. Habitat in this category directly limits a community, population or subpopulation, and restoration or replacement may not be possible. Some modification of habitat characteristics may occur, provided habitat function is maintained (i.e., the location, essential features, and species supported are unchanged). These will be evaluated as part of the consultation with the Service.

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United States Department of the Interior

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November 30, 2007

In Reply Refer To:
6840 (030)

Mr. Brian Kelly, Field Supervisor
U.S. Fish and Wildlife Service
Ecological Services, Wyoming Field Office
5353 Yellowstone Road, Suite #308A
Cheyenne, Wyoming 82009

Dear Mr. Kelly:

This letter represents a continuation of formal consultation with the U.S. Fish and Wildlife Service (Service) in accordance with Section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et. seq.) and the Interagency Cooperation Regulations (50 CFR 402) for the final *U.S. Bureau of Land Management (Bureau) Rawlins Resource Management Plan* (BLM-RMP). On August 2, 2006, formal consultation for the BLM-RMP modified Biological Assessment (BA) was requested. On January 18, 2007, we received the Biological Opinion (BO). Changes to the BLM-RMP have been made since the January 8, 2007, BO was received regarding the management of produced waters from coalbed methane natural gas development in the Colorado River Basin. On June 7, 2007, we contacted the Service via a conference call to reinitiate consultation. We have worked cooperatively with the Service throughout the consultation process through numerous e-mail correspondence, telephone conversations, a meeting on August 15, 2007, in Laramie, Wyoming, and a conference call on August 17, 2007. In addition, correspondence from the Service (ES-61411/W.02/WY07FA0425) regarding our letter sent on May 31, 2007, was received by us on October 9, 2007, with recommendations for the final BA.

This document has been prepared as a supplement to the Biological Assessment (BA) prepared for the Final Environmental Impact Statement (FEIS), describing the comprehensive analysis of alternatives for the planning and management of public lands and resources we administer in the Resource Management Plan Planning Area (RMPPA) of Wyoming.

INTRODUCTION

The objective of this document is to initiate additional consultation not included in the programmatic BA and provide documentation and analysis of changes to the proposed action to meet the federal requirements and agreements set forth among the federal agencies. It addresses federally listed T&E, candidate, and proposed species and has been prepared under the 1973 ESA Section 7 regulations, in accordance with the 1998 procedures set forth by the Service and NMFS, and in accordance with the 1994 MOU and 2000 MOA. Additional consultation is

needed concerning changes made from the DEIS preferred alternative to the FEIS proposed plan on listed species. Site-specific evaluations will still be conducted for activities authorized under the RMP, and consultation or conference will occur with the Service for those activities that may affect threatened, endangered, candidate, or proposed species.

Water quality and quantity impacts to T&E species from surface discharge of coalbed natural gas (CBNG) produced waters in the Colorado River basin were not disclosed or consulted on in the original RMP BA. We request programmatic consultation for potential impacts of surface discharge of CBNG produced water on downstream T&E fish species in the Colorado River Basin.

Consultation is required for the four federally-listed species of fish in the upper Colorado River system: the endangered Colorado pikeminnow (*Ptychocheilus lucius*), the endangered humpback chub (*Gila cypha*), the endangered bonytail chub (*Gila elegans*), the endangered razorback sucker (*Xyrauchen texanus*) and their designated critical habitat (USDI-FWS 2004). All four of these fish species share similar habitat requirements and historically occupied the same river systems. Declines in populations of these species are mainly attributed to impacts of water development (e.g., dams and reservoirs) on natural temperature and flow regimes, creation of migration barriers, habitat fragmentation, the introduction of competitive and predatory non-native fishes, and the loss of inundated floodplains and backwater areas (Minckley and Deacon 1991, USDI-FWS 1993).

The occurrence of these endangered fish species has not been confirmed in Wyoming in the Muddy Creek drainage or downstream in the Little Snake River. The last documentation of any of these fish species occurring in the Little Snake River was of a single Colorado pikeminnow in 1990 (Baxter and Stone 1995). Subsequent survey attempts by the Wyoming Game and Fish Department (WGFD) to collect Colorado pikeminnow from this area of the Little Snake River yielded no additional specimens. Critical habitat for these species has not been designated in Wyoming (Upper Colorado River Endangered Fish Recovery Program 1999). These species are not likely to be found in the main stem of the Little Snake River within Wyoming or its tributaries. If any of these species are identified within the downstream portion of Muddy Creek or immediately downstream in the Little Snake River, we will consult with the FWS and develop a protection plan for the fish.

DESCRIPTION OF THE PROPOSED ACTION

Our RMPPA is located in south-central Wyoming and includes approximately 11.2 million acres of land in Albany, Carbon, Laramie, and Sweetwater counties. Within this area, the RMPPA administers approximately 3.4 million acres of public land surface and mineral estate, 0.1 million acres of public land surface where the mineral estate is state and private, and 1.2 million acres of federal mineral estate where the surface is privately owned or state-owned. As stated above, the public lands and federal mineral estate within the RMPPA are the subject of the planning effort, the actions that will occur, and the associated potential and/or known impacts that will result as a result of implementing our RMP. The subject of this BA document specifically addresses changes to the proposed action regarding the management of disposal methods for produced water from coal bed methane natural gas development in the Colorado River basin. For a complete description of the Proposed Action refer to the BA submitted on August 2, 2006.

Consultation in the August 2, 2006, BA, states under the preferred alternative that "surface discharge of produced water would not be allowed in the Colorado River Basin" and "injection of produced water from federal oil and gas leases would be required in the Colorado River Basin". However, changes that were made from the DEIS to the proposed plan in the FEIS require additional consultation for actions that will lead to potential surface discharge of CBNG produced waters in the Colorado River basin.

Consultation was not conducted for the following action: "surface discharge of CBNG produced water that meets Wyoming surface water standards would be allowed in the Colorado River Basin. Individual projects would be considered on a site-specific basis". For a list of potential CBNG wells and likely produced water disposal scenario in the Colorado River Basin within the RMPPA, refer to Table 1.

Table 1. Most Likely Potential Water Disposal Scenario from CBNG Development in the Colorado River Basin

Project Name	CBNG Wells	Disposal Method	BLM Approved
Atlantic Rim Natural Gas Field Development Project	1,800	Injection, offset, and surface discharge[1]	Yes
South Baggs Natural Gas Development Project	50	Injection	Yes
Continental Divide –Creston Natural Gas development Project	900	Injection	No

1. Surface discharge in Atlantic Rim will require separate NEPA analysis and consultation prior to approval.

COORDINATION/CONSERVATION MEASURES

As part of the affected environment for the RFO RMP, Section 7(a)(1) of the ESA requires the federal agency (i.e., the BLM) to utilize all of its authorities in furthering the purposes of the Act by implementing programs for the conservation of listed T&E species. These conservation and coordination measures are described in the August 2, 2006 BA.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

Colorado River Species

Introduction

Four federally-endangered fish species occur as downstream residents of the Colorado River system: Colorado pikeminnow (*Ptychocheilus lucius*), bonytail (*Gila elegans*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*) (USDI-FWS 2004). The Colorado pikeminnow, bonytail, and humpback chub are all members of the minnow family. The razorback sucker is a member of the sucker family. All four of these fish species share similar habitat requirements and historically occupied the same river systems. Declines in populations of these species are mainly attributed to impacts of water development (e.g., dams and reservoirs) on natural temperature and flow regimes, creation of migration barriers, habitat

fragmentation, the introduction of competitive and predatory non-native fishes, and the loss of inundated bottom lands and backwater areas (Minckley and Deacon 1991, USDI-FWS 1993). Habitat alterations and habitat fragmentation due to dams, reservoirs, and regulated flows have resulted in changes in habitat availability, habitat distribution, and habitat quality. In addition, introductions of non-native fishes, such as rainbow trout, brown trout, and channel catfish, have resulted in competitive exclusion and diminished abundance of native fishes in much of their historic ranges. Similar impacts have reduced populations of federally listed fishes in the upper Colorado River Basin, such as the Colorado pikeminnow. Finally, the inundation or diminution of wetland habitats due to flow regulation and reduced water availability can negatively impact wetland plants and reduce the amount of available cover and forage for fish.

For Additional information on listed fish species in the Colorado River basin including listing status, species description, critical habitat and life history refer to the August 2, 2006, BA.

Consultation History and Historic Depletions

For a comprehensive list of consultation history in the Colorado River basin refer to the August 2, 2006, BA.

Colorado River Basin Species and Designated Critical Habitat

Four endangered fish found in the Colorado River in Colorado may be affected by BLM-authorized actions within the RMPPA (Table 2). Critical habitat for these species has not been designated in Wyoming, but occurs approximately 105 river miles downstream from the Wyoming border at the confluence of the Little Snake River and Yampa River, Colorado.

Table 2. Federally-Listed Fishes Under The Endangered Species Act Of 1973 that are Native to the Colorado River Basin and may be Affected Surface Discharge Of CBNG-Produced Water From BLM-Authorized Actions Within The RMPPA

Common Name	Scientific Name	ESA Status	Designated Critical Habitat
Colorado Pikeminnow	*Ptychocheilus lucius*	Endangered	Yes
Razorback Sucker	*Xyruachen texanus*	Endangered	Yes
Bonytail	*Gila elegans*	Endangered	Yes
Humpback Chub	*Gila cypha*	Endangered	Yes

Colorado pikeminnow (*Ptychocheilus lucius*), Razorback sucker (*Xyrauchen texanus*), Bonytail (Gila elegans), and Humpback chub (*Gila cypha*)

Listing Status: Federal—Endangered

For species description, status and distribution of species, habitat associations and life history requirements, and threats from human activity refer to the August 2, 2007, BA.

ENVIRONMENTAL CONSEQUENCES AND VIABILITY

Potential impacts to Endangered Colorado River fish species from surface discharge of produced CBNG waters could include changes in water quality (e.g., altered chemical composition of water and bioaccumulation of chemicals) and quantity (e.g., alteration of seasonal flow regimes).

The development of CBNG requires lowering pressures in coal seems by pumping water from a saturated coal formation so that production of the gas occurs. The Colorado River basin has a number of potentially viable coal formations; however the most likely formation to see development is the Mesaverde in the RMPPA.

The following projects have or will potentially pursue surface discharge in the future:

- **The Atlantic Rim Natural Gas Development Project EIS (ARPA; USDI-BLM 2007a)** - completed an EIS for 1,800 Coalbed Natural Gas (CBNG), the Record of Decision was released on May 21, 2007. Proposed water disposal methods include injection and offset mitigation under the Colorado River Salinity Forum.

- **Catalina Unit CBNG Produced Water Disposal Project –** The most recent proposal included direct discharge of 1.27cfs of treated CBNG water into Muddy Creek from approved wells in the ARPA**.** NEPA analysis of the project is ongoing. On October 12, 2007, the BA for the project (USDI-BLM 2007b) was completed and a letter of concurrence from the FWS was received.

Reasonably foreseeable development includes CBNG in the Atlantic Rim, South Baggs, and Continental Divide/Creston natural gas development projects (Table 1). However, the most likely scenario for surface discharge will occur within Atlantic Rim. Water disposal can be achieved by various methods that can result in surface discharge, evaporation and/or underground injection (see Section 4.17 of the Rawlins RMP PFEIS). Methods for surface water disposal have potential environmental consequences that vary greatly depending on specific methods for handling the water. For example, waters may or may not be treated, may be treated by various methods for various constituents, and may be discharged into ephemeral dry channels, put into evaporation reservoirs, or piped to perennial systems. This document will focus on surface discharge of CBNG produced water into ephemeral or perennial channels that would potentially impact downstream T&E Colorado River fish species.

Potential impacts from surface discharge are heavily dependent on methods for treating surface discharge of produced water. The Colorado River Salinity Control Forum (Salinity Forum) was established to meet treaty obligations with Mexico concerning water quality (http://www.coloradoriversalinity.org/). The states that participate in the Salinity Forum include Colorado and Wyoming and, as such, these states will adhere to requirements specified in the 2005 Review of Water Quality Standards for the Colorado River System. This document allows for two methods of allowing states to permit surface discharge of saline waters above the one-ton per day limit. The first is an offset, where the project proponent will mitigate an existing source of salt loading for the privilege of being allowed to discharge the same volume of salt back into the system. The second is a fresh water waiver, which allows the discharge of water below 500 mg/L of TDS above Lee's Ferry and this is assumed to be protective of downstream values (for more information see Appendix 11 of the PFEIS). It is also possible that the produced water (treated to less than or equal to 500 mg/L TDS) will gather salts and other substances while

traveling along its flow path. This will be especially true if water was discharged into ephemeral systems. The amount of salt accumulation is uncertain (i.e., tons/year), and, therefore, this impact can be generally predicted, but not easily quantified.

There are currently no approved CBNG development projects for surface discharge of produced water as part of the Salinity Forum's rules for fresh water waivers (i.e., below 500 mg/L TDS). However, one project has been proposed (i.e., Catalina Unit CBNG Produced Water Disposal Project) and the BA for the project (USDI-BLM 2007b) was completed and a letter of concurrence from the FWS was received on October 12, 2007. NEPA analysis for the Catalina Unit CBNG Produced Water Disposal Project is currently ongoing. Any such approvals by us for surface water disposal projects will require State surface discharge permits, treatment to achieve 500 mg/L, additional NEPA analysis for all aspects of the project, and Section 7 consultation with the Service. Potential changes to water quality during transit, especially in ephemeral systems will be analyzed. This will include potential changes to water quality and hydrographs downstream.

Several potentially-toxic constituents have been identified in CBNG produced water (Atlantic Rim EIS 2007). Potential impacts to fisheries from water quality constituents associated with effluent are dependent on their concentrations and may include mortality, lowered reproductive success or complete reproductive failure, slowed growth, deformities, and general edema. However, the effects that water quality constituents will have on downstream T&E fish species in the Colorado River basin is uncertain due to changes that may occur to water quality between the discharge point and the critical habitat in the Yampa River in Colorado. If surface discharge occurs, changes to water quality will result from dilution with flows from the upper Little Snake River watershed and interaction with soils, irrigation, and municipal return flows above critical habitat.

Water quality constituents that can be present and the amounts in CBNG waters may vary greatly even within the same formation. In general, constituents have been measured in coal aquifers such as the Mesaverde coals and include; ammonia, arsenic, barium, bicarbonate, boron, cadmium, chloride, chromium, copper, iron, lead, manganese, mercury, petroleum hydrocarbons, phenol, selenium, sodium, zinc, and salinity. These substances have been identified as potentially harmful to the aquatic environment. In addition, there are other substances that could potentially occur in the CBNG product water that have not been identified. For a comprehensive list of toxicological benchmarks for aquatic biota refer to Sutter and Tsao (1996).

Bio-accumulation of unwanted elements downstream of surface discharge points could have a negative impact to fish species. The toxicity levels of substances to aquatic organisms is variable and depends on concentration, form, type of organism and life stage, period of exposure and environmental factors (e.g., water temperature, water hardness and presence of other substances). For example, selenium concentrations of 5 µg/L were reported by Sorensen (1988) as having substantial impacts and mortality to fish. Selenium concentrations as low as 2 µg/L were reported to have chronic toxicity effects on invertebrates (Crane et al. 1992) and concentrations exceeding 2 µg/L may create a bioaccumulation risks for fish and sensitive species of aquatic birds (Hamilton 2002, Skorupa and Ohlendorf 1991; Lemly 1993).

Degradation of habitat conditions of streams of the Colorado River system inhabited by the endangered bonytail (*Gila elegans*), endangered Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*) have been identified as

factors in the population declines of these species. Habitat degradation has occurred in the form of lowered water quality or altered stream flow patterns (Korte 2000). Activities that could further lead to habitat degradation could include: surface discharge of produced water associated with coalbed natural gas development; or conventional natural gas development within the Bureau of Land Management's RMPPA.

Within the RMPPA, the headwaters of Muddy Creek as well as tributaries to Muddy Creek located east of Wyoming Highway 789 are underlain by potentially contaminant-bearing (e.g., selenium-bearing) marine Cretaceous shale formations (Figure 1). Water quality data from the U.S. Geological Survey (USGS) show elevated selenium concentrations (12 to 13.5 µg/L) in lower Muddy Creek in December 2006 and January 2007 (M. Clark, USGS, personal communications, June 14, 2007). During the summer and fall months, selenium concentrations in Muddy Creek documented by the USGS ranged from 4.4 to 7.8 µg/L.

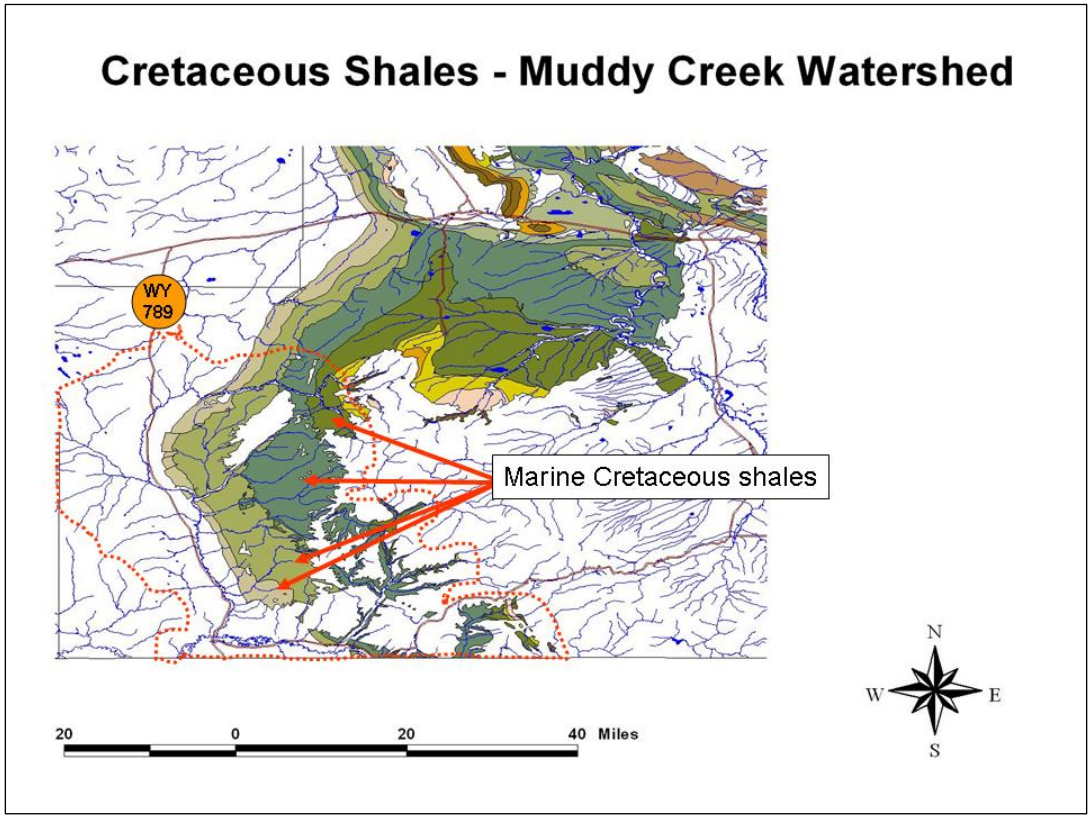


Figure 1. Marine Cretaceous shales within the Muddy Creek and Little Snake River Watersheds, Carbon County, Wyoming.

The toxic effects of selenium to fish include: damage to gills and internal organs, teratogenic deformities, and impaired reproduction (Lemly 2002). Selenium can also cause an increase in energy requirements thus making fish more susceptible to Winter Stress Syndrome leading to mortality (Lemly 2002). Hamilton et al. (2002) exposed adult razorback suckers to water and food contaminated with selenium for approximately nine months and found the larvae produced from the eggs from such adults contained deformities if their parents were exposed to waterborne selenium concentrations ranging from <0.7 to 17.1 µg/L and dietary concentrations ranging from

18 to 39 µg/g. Such effects from selenium poisoning can often go undetected because the "primary point of impact is the egg" which receives the selenium from the contaminated female (Lemly 2002).

Relatively minor changes in salinity levels have the potential to alter the structure and composition of a fish assemblage (Ostrand and Wilde 2001; Higgins and Wilde 2005) Exposure to elevated salinity levels such as sodium bicarbonate ($NaHCO_3$), the major salt associated with CBNG produced water can result in decreased survival, fecundity and in some cases death. Laboratory tests on fathead minnow *Pimphales promelas* (a relatively salt tolerant species) to determine acute toxicity of salts resulted in 96-h LC50 values of $KHCO_3$ (<510mg/L), $NaHCO_3$ (<850mg/L), KCL(<880mg/L), and K_2SO_4 (<850mg/L; Mount et al. 1997).

Any potential surface discharge will be permitted with the state of Wyoming using the Wyoming Pollutant Discharge Elimination System (WYPDES) and will be protective of water quality standards for the Little Snake River (Classified as 2AB) downstream. All potential surface discharges on BLM-administered lands will require our approval after a NEPA analysis (see section 4.17 of the PFEIS). Class 2AB waters in Wyoming have the highest numerical standards and are protected for drinking water and game fisheries. The numeric standards for these waters are listed at the WDEQ website (http://deq.state.wy.us/wqd/surfacestandards/). Impacts that could occur from approving surface discharge while meeting these state standards will be disclosed in project specific NEPA.

DILUTION ANALYSIS

The primary issue of concern to downstream T&E fish species associated with surface discharge of CBNG produced water is the potential for the produced effluent to contain constituents that are known to be harmful to aquatic ecosystems. To demonstrate the potential impacts from reasonably foreseeable CBNG surface discharge projects under the proposed action, a dilution analysis was conducted to display additions of constituents to the Colorado River system. To accurately determine the maximum reasonably foreseeable amount of CBNG produced water that will be discharged at one time a water production model was calculated. Data for the production model was obtained from exploratory wells within the Cow Creek area of Atlantic Rim (http://wogcc.state.wy.us/). This model indicated a consistent decline in water production per well over time (Figure 2).

Information from the water production model was then applied to estimate the most likely maximum discharge scenario incorporating the number of wells drilled per year (Table 4). Number of wells per year was determined by: 1) known number of wells drilled in 2007, 2) maximum number of wells allowed per year (USDI-BLM 2007a), and 3) number of wells anticipated by operators per year. The following analysis demonstrates the most likely scenario for maximum potential surface discharge rates in the Colorado basin within the RMPPA and takes into account well production rate and accumulation of wells per year (Table 4).

The following assumptions were made in order to determine the most likely scenario for maximum potential surface discharge rates in the RMPPA:

1. The number of wells within the Atlantic Rim project area will not exceed 200 wells per year, less than 100 wells will be drilled in 2007, and what is currently anticipated from us from 2013-2016 (Table 4).

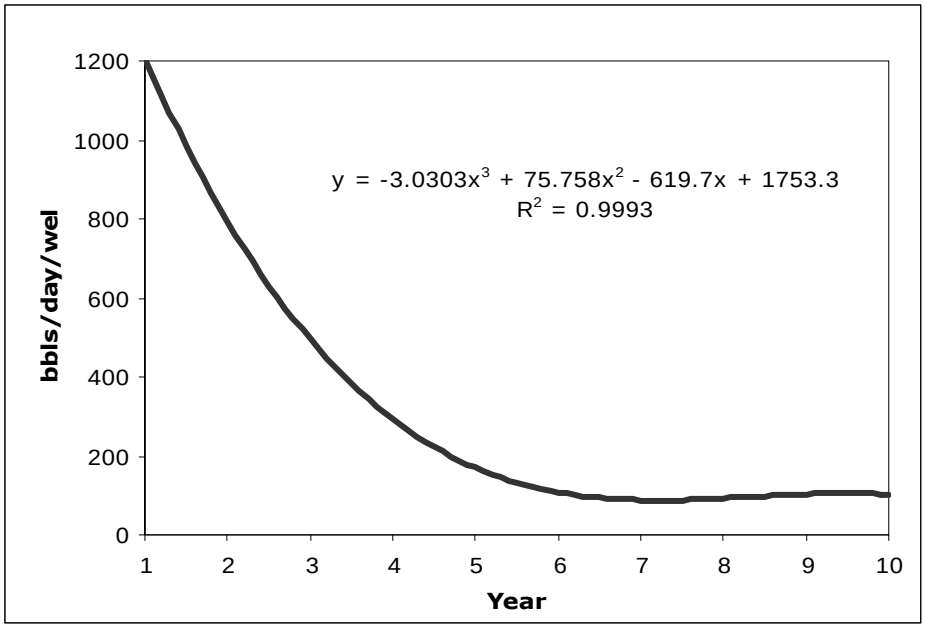


Figure 2. Estimated Production Curve Illustrating Production of Water in Barrels per Day (bbls) Based on Data Obtained from Exploratory Wells Within the Cow Creek Development Area of Atlantic Rim

2. All wells will follow production curves similar to those observed in the exploratory Cow Creek wells (Figure 2).

3. All surface discharge will occur within tributaries to the Colorado River Basin.

4. A minimum of 10 percent of produced water will continue to be re-injected. Re-injection of 10 percent produced water will represent a "worst case scenario" because injection wells will still be required for operation.

5. The maximum rate of production is 39cfs – 3.9cfs (10% reinjection) = 35.1cfs

For demonstration purposes, a dilution analysis based on the 35 cfs was conducted to display the magnitude of impacts from reasonably foreseeable CBNG surface discharge projects under the proposed action due to addition of constituents to the Colorado River system. To conduct the analysis a number of assumptions were made that are not directly relatable to actual environmental conditions, but were necessary because the information does not currently exist to more accurately address the assumptions. All stream flow volumes and constituent levels were obtained from the USGS National Water information System which can be found on line at http://waterdata.usgs.gov.

Table 3. Most Likely Scenario for Water Production in Barrels Per Day (bbls/day) and Cubic Feet per Second (cfs) Within the RMPPA by Year
1bbls/day = 0.000064984 cfs

Total Water Production				
Year	**Wells Drilled**	**Total Wells**	**bbls/day**	**cfs**
2007	100	100	120,000	8
2008	200	300	320,000	21
2009	200	500	450,000	29
2010	200	700	530,000	34
2011	200	900	575,000	37
2012	200	1,100	600,000	39
2013	115	1,215	518,000	34
2014	80	1,295	428,000	28
2015	80	1,375	377,500	25
2016	80	1,455	354,500	23

The primary intent of the analysis in Table 4 is to display the magnitude of dilution that is expected to occur from the end of pipe to various points along the Upper Colorado River System extending down to the Critical Habitat in the main stem of the Yampa River in Colorado. The lowest selenium concentration (1µg/L) represent the only known concentration of selenium in effluent produced within Atlantic Rim and 9µg/L represents the level of selenium allowed under the only known WYPDES permit authorized within Atlantic Rim. The assumptions that were made for the analysis displayed in Table 5 are as follows:

1. The environmental water was free of selenium at the time of mixing.

2. There was no conveyance loss of water through the system (similar to 100 percent of the effluent being piped to each respective site).

3. The water pH, temperature, and chemistry remained constant and had no effect on the selenium.

4. There was no addition of selenium from naturally occurring sources along the system.

5. The equation used to calculate the "Resulting Solution" values was $[v1(^{m}/_{vu})]/(v1 + v2)$ where v1 = 35 ft^3, m = hypothetical mass in µg of Selenium, vu = the unit of measure for volume (i.e. ft^3), v2 = the volumes associated with the respective lows for the gauging stations.

6. 1 ft^3 = 28.31684659 L

Assumption 1 was included so that a general display of dilution could be achieved. Assumption 2 was included in an attempt to convey the worst possible magnitude of selenium addition to the system at any given time. Assumptions 3 and 4 were included because the data for these assumptions is variable through time and/or is currently unavailable. It is known however, that water chemistry, temperature, and pH are important factors that effect how selenium behaves in a water system.

The analysis was performed in this manner to convey the recognizable worst case scenario in the form of piping 100 percent of the effluent into each segment of the Colorado River system rather than into Muddy Creek and mixing as produced water moved downstream. Another potential analysis will be to perform the above calculations to include the resultant upstream concentrations of selenium. Intuitively this will further reduce the potential for bioaccumulation because the concentrations are being diluted at each step along the system where more water is added. Table 4 demonstrates that the potential for dilution of selenium from the end of pipe to the various points along the system is very high, and that in all likelihood there will be insignificant impact to the listed fish species and their critical habitat. If 9µg/L of selenium at 35 cfs was discharged, an addition of only 0.66 µg/L will result in the Yampa River.

Table 4. Results from the Analysis of Selenium Dilution for Potential Surface Discharge in the Colorado River Basin

Analysis of Selenium Dilution

Solution Parameters[1]	Muddy Creek Near Baggs, WY 0.22 ft^3 (Se free water[2])	Little Snake River near Lily, CO 67 ft^3 (Se free water[2])	Yampa River near Deerlodge, CO 444 ft^3 (Se free water[2])
End of Pipe[3]	Resulting Solution (µg/L[4])		
35 ft^3 @ 1 µg/L[4]	0.99	0.34	0.07
35 ft^3 @ 2 µg/L[4]	1.99	0.69	0.15
35 ft^3 @ 5 µg/L[4]	4.97	1.72	0.37
35 ft^3 @ 9 µg/L[4]	8.94	3.09	0.66

1. Water volumes are low instantaneous volumes for the month of August obtained from the USGS guaging stations displayed in the National Water Information System (http://waterdata.usgs.
2. For analysis/demonstrative purposes it was assumed that there was no naturally occuring selenium in the water system at the time and location of mixing.
3. The concentrations for End of Pipe are hypothetical potentials up to the 9 µg/L that is permitted by the DEQ permit.
4. µg/L indicate potential concentrations of Se

The following selenium mixing analysis better represents environmental conditions by including Se concentrations of effluent and existing water and gives a more realistic result (Table 5). The same analysis could be performed for any potential constituent in the effluent.

The primary intent of the analysis in Table 5 is to display the amount of relative impact that the addition of 35 cfs of effluent at varying concentrations of selenium will have on the existing environmental conditions along the Upper Colorado River System extending down to the Critical Habitat in the main stem of the Yampa River, Colorado. The lowest selenium concentration (1µg/L) represent the only known concentration of selenium in effluent produced within Atlantic Rim and 9µg/L represents the level of selenium allowed under the only known WYPDES permit authorized within Atlantic Rim. The assumptions that were made for the analysis displayed in Table 5 are as follows:

1. The environmental water contained the maximum concentration of selenium ever recorded for the system location at the time of mixing. The maximum concentrations for the three sites usually occur in December.

2. The environmental flows were at the average minimum flows for the year. Based on monthly averages, the minimum flows in Muddy Creek occurred in August, and therefore the flows for August were used for the other locations as well.

3. There was no conveyance loss of water through the system (similar to 100 percent of the effluent being piped to each respective site).

4. The water pH, temperature, and chemistry remained constant and had no effect on the selenium.

5. The equation used to calculate the "Resulting Solution" values was {[v1(m1/vu)] + [v2(m2/vu)]}/(v1 + v2) where v1 = 35 ft3, m1 = hypothetical mass in µg of Selenium associated with v1, m2 is the actual worst case concentration of selenium at the associated gauging station, vu = the unit of measure for volume (i.e. ft^3), v2 = the volumes associated with the respective lows for the gauging stations.

6. 1 ft^3 = 28.31684659 L

Assumptions 1 and 2 were included so that a recognizable worst case scenario could be analyzed. Assumptions 3 and 4 were included because data for these assumptions is variable through time and/or are currently unavailable. It is known however, that site-specific levels of selenium are highly variable and could have an impact on the overall selenium loading at each respective point.

Table 5. Results from the Analysis of Selenium Mixing for Potential Surface Discharge in the Colorado River Basin

Analysis of Selenium Mixing			
Solution Parameters[1]	Muddy Creek Near Baggs, WY 0.22 ft^3 @ 13.5 µg/L	Little Snake River near Lily, CO 67 ft^3 @ 5 µg/L	Yampa River near Deerlodge, CO 444 ft^3 @ 7 µg/L
End of Pipe[2]	Resulting Solution (µg/L_3)		
35 ft^3 @ 2 µg/L_3	2.07	3.97	6.63
35 ft^3 @ 5 µg/L_3	5.05	5.00	6.85
35 ft^3 @ 9 µg/L_3	9.03	6.37	7.15

1. Water volumes are low instantaneous volumes for the month of August obtained from the USGS guaging stations displayed in the National Water Information System (http://waterdata.usgs.gov). The concentrations associated with the system locations are the maximum selenium concentrations ever recorded for that particular guaging station.
2. The concentrations for End of Pipe are hypothetical potentials up to the 9 µg/L that is permitted by the DEQ permit.
3. µg/L indicate potential concentrations of Se

This analysis was also performed in a manner to reflect the worst case scenario. This will assume that 100 percent of the effluent was piped to each segment of the system with no allowance for upstream dilution. This analysis is also based on low flow volumes, and the highest recorded selenium concentrations at each respective gauging station. The table displays that there is insignificant impact to the overall selenium loading from the addition of selenium carrying effluent to the system at a level of 35 cfs. An important note is that the largest negative impact to a given discharge point and resultant system will occur when the effluent was at a

substantially greater volume and concentration than the ambient water into which it was being discharged. It is intuitive that given a lower concentration of ambient water at the discharge point, the resultant solution could be at a much higher concentration. However, the converse is also true. If the effluent is at a large volume and low concentration compared to the system water at the discharge location, then there will be dilution of the concentration in the system.

This is clearly demonstrated by the result of combining 35 ft^3 @ 2 µg/L-Se with 0.22 ft^3 @ 13.5 µg/L-Se. The only increase in selenium greater than 1µg/L occurs in the Little Snake River when discharge is at 35 cfs and 9 µg/L.

It is important to note that in most cases additions of surface water will be beneficial to downstream water quality through dilution. Another important consideration is that local impacts to our sensitive fish species will occur from surface discharge before levels will ever reach quantities that will increase selenium downstream. Based on the scrutiny that recent proposed projects have received (i.e., Catalina Unit CBNG Produced Water Disposal Project**)** and our commitment to protect sensitive fish species in Muddy Creek, it is highly unlikely that selenium or discharge levels will be authorized will ever reach levels high enough to impact downstream T&E species.

Water quantity is also a concern with the authorization of surface discharge from CBNG produced water projects. Potential volumes of water disposal are uncertain from current CBNG development projects because many of these projects are in the exploratory phase, and the ideal pressures to allow gas to desorb are not known and may be variable across a CBNG field. Estimates from the Atlantic Rim EIS can be used for potential projects in the Colorado River Basin and represent a worst case scenario because injection of CBNG produced water has been proposed for the majority of Atlantic Rim, Continental Divide/Creston, and South Baggs Projects (Table 3).

Increases in water quantity will also occur from surface discharge of produced water. Depending on the quantity of water,this could have a beneficial or negative impact to downstream T&E species. Increases in water quantity during spring runoff that inundate floodplain habitat important to the reproductive success of T&E species during the spring and early summer will be beneficial. However, increases in water quantity that will alter the natural flow regime year round will likely have a negative impact on Colorado River T&E fish species. Potential impacts from a stable hydrograph include alteration of the aquatic ecosystem and changes in fish assemblage composition. A stable hydrograph is of particular concern because Colorado River T&E species have evolved in a highly fluctuating river system. However, it is discountable that the quantities of water being produced in the RMPPA will impact T&E fish species over 100 miles downstream (Table 6). For example, 35 cfs will only account for 4 percent of the 20^{th} percentile low flows in the Yampa River.

Table 6: Comparison of Streamflows with the Maximum Potential Surface Discharge of 35 cfs*.

HUC	Stream	USGS Gage #	20th Percentile, Low Flows		Average		Maximum	
			Value (cfs)	% of Flow	Value (cfs)	% of Flow	Value (cfs)	% of Flow
14050004	Muddy Creek	9259000	4	875 %	14.7	238 %	632	5 %
14050003	Little Snake River	9260000	245	14 %	562	6 %	13,400	<1%
14050002	Yampa River	9251000	840	4 %	1,547	2 %	24,400	<1 %

* Maximum potential surface discharge value of 35 cfs represents a "worst case scenario" and is based on the assumption that all CBNG wells in the RMPPA within the Colorado River Basin will be discharging simultaneously and that no conveyance loss will occur.

The cumulative effects on Colorado River T&E species due to activities that occur on public and private lands in the upper Colorado River Basin (Wyoming only) are real and may be measurable. The cumulative effects to this species are primarily the result of water developments and water uses in the basin. Impacts to water quality from surface discharge of CBNG produced water are also a concern. Also, introduced species are an important component of the cumulative effects that impact Colorado River fish species.

SPECIES CONSERVATION MEASURES

Implementation of the following conservation measures are intended to minimize, or eliminate, adverse impacts to Threatened, Endangered, Candidate, and Proposed (T&E) species that are likely to result from implementation of the management actions provided in the Rawlins Resource Management Plan Planning Area (RMPPA). The U.S. Bureau of Land Management (Bureau or BLM) has committed to implementing the following conservation measures. The Bureau has been active in conservation of listed and candidate species, and is committed to playing a key role in the recovery effort for these species.

The following binding conservation measures will reduce potential effects to T&E species and their habitats and highlight the steps the Bureau can take to work towards recovery of the species. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of T&E species.

1) The Bureau will continue to participate in the Upper Colorado River Endangered Fish Recovery Program.

2) Prior to approval of projects that allow surface discharge of produced water, the Bureau will ensure that the following conservation measures are implemented within a regional frame work for water resource monitoring to prevent selenium-induced or other contaminant-induced impacts from changes in water quality and/or quantity related to oil

and gas development to the Colorado River fishes or their designated critical habitat from production of ground water within the Colorado River Basin. The monitoring framework will aid in the development of a credible, science based, efficient monitoring plan for the Rawlins Resource Management Planning Area (RMPPA). Developing a thorough monitoring plan following the criteria established in the monitoring framework will allow integration of pertinent existing monitoring into a comprehensive approach. This combined effort will provide the information needed for the BLM and State Regulatory agencies to understand existing surface and ground water conditions. It will also allow for the development of a set of actions necessary to maintain water quality within established standards in the RMPPA and that can be used in an Adaptive Management approach:

a) Obtain existing data on waterborne selenium and other potentially deleterious water quality constituent concentrations in the RMPPA as determined appropriate by the Bureau in tributaries to the Colorado River Basin to determine baseline for any future cumulative impacts to water quality.

b) If water quality data is not available for Muddy Creek and the Little Snake River, water sampling would be conducted in Muddy Creek and the Little Snake River to obtain adequate baseline data on selenium and other potentially deleterious water quality constituents.

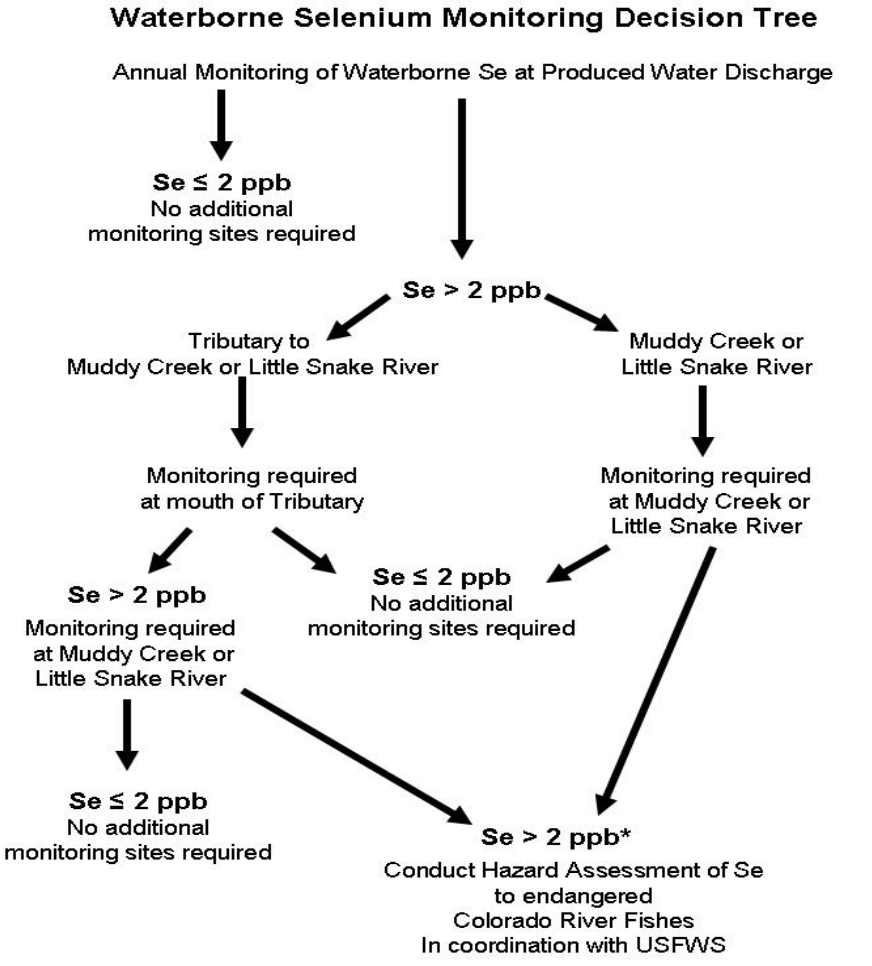
c) If baseline water quality data show that selenium and/or other potentially deleterious water quality constituents in Muddy Creek and or the Little Snake River become elevated from oil and gas development activities, the Bureau will recommend to the Wyoming Department of Environmental Quality (WDEQ), and the U.S. Environmental Protection Agency, that total maximum daily loads (TMDL) are developed for Muddy Creek and/or the Little Snake River to prevent adverse impacts to the endangered Colorado River fishes.

d) Conduct a hazard assessment appropriate for the size, characteristics, and scale of the individual project in agreement with the U.S. Fish and Wildlife Service. Hazard assessment analysis would estimate potential impacts to downstream critical habitat for and populations of the endangered Colorado River fishes from selenium and other potentially deleterious water quality constituents.

e) The BLM will require operators to set the selenium detection limit at 1 µg/L. Operators would also be required to submit water quality reports, as required by state Wyoming Pollutant Discharge Elimination System (WYPDES) permits, to the BLM for review as well as to the WDEQ.

f) The BLM will also require monitoring at the end of pipe, as well as other points within the RMPPA downstream of the proposed discharge location. The decision tree outlined in conservation measure (g) will be consulted to determine monitoring locations. If the levels of constituents are above recognized thresholds, appropriate action will be taken to attempt to reduce the levels of these constituents. Appropriate action may include documentation and reporting of the situation to the appropriate enforcement agency or steps taken to reduce the constituent of concern through established mechanisms.

g) Waterborne Selenium Monitoring Decision Tree



*NOTE: If baseline waterborne selenium concentrations in Muddy Creek or the Little Snake River are above 2 µg/L (ppb), then hazard assessment required if Se concentration increases above baseline.

BEST MANAGEMENT PRACTICES

When assessing potential projects, injection of CBNG produced waters will be the preferred method of water disposal.

MANAGEMENT STATUS AND RECOVERY AND CONSERVATION PLANNING

Recovery plan completed August 28, 2002.

DETERMINATION

The effects determination for impacts to Colorado pikeminnow (*Ptychocheilus lucius*), Razorback sucker (*Xyrauchen texanus*), Bonytail (Gila elegans), Humpback chub (*Gila cypha*) and their designated critical habitat from surface discharge of CBNG produced waters is "May Affect, Not Likely to Adversely Effect (NL-b,d). In the event of potential unknown impacts, a determination should err on the side of conservation for the species. This is one of the primary underlying philosophies that went into this programmatic BA, and the reason that recognizable worst case scenario analyses were performed. The important points that lead to this determination are that implementation of applied conservation measures will prevent downstream impacts to T&E fish species and their designated critical habitat in the Colorado River basin. In addition, the only known concentration of selenium from produced water is less than 1µg/L. The average baseline in Muddy creek is approximately 4.4 µg/L of selenium. The analysis above displays that the addition of 35 cfs from a most likely maximum scenario into the Colorado River system is insignificant when considering the overall volumes of the system. It is also important to note that in most cases additions of surface water will be beneficial to downstream water quality through dilution. The distance from the Muddy Creek to designated critical habitat is approximately 100 river miles downstream. It is also unlikely that any of these species occur in Muddy Creek, and the last documentation of any of the Endangered Colorado River fish in the Little Snake River in Wyoming was in 1990. Finally, it is discountable that selenium, discharge levels, or any other harmful constituents will ever reach levels high enough to impact downstream T&E species because of our commitment to protect BLM-sensitive fish species in Muddy Creek.

However, implementation of the RFO RMP will instill to an overall determination of "likely to adversely affect" for Colorado pikeminnow (*Ptychocheilus lucius*), Razorback sucker (*Xyrauchen texanus*), Bonytail (Gila elegans), and Humpback chub (*Gila cypha*). This determination is based on the potential impacts from further water depletions to the Colorado River Basin. If specific projects that incorporate CBNG surface discharge or water depletions are proposed during the planning period, we will continue to consult with the Service.

EFFECTS DETERMINATIONS

The following determinations will be made following our analysis of project activities as they affect each T&E and Special Status Species. The determination categories located in Table 1 are considered a part of this BA and include the following:

THREATENED AND ENDANGERED SPECIES

- No effect (NE): The appropriate conclusion when our RMPPA determines its proposed action will not affect listed species. The principle factor for this determination is that "suitable habitat" does not exist for the species in the area where the activity would occur.

- May affect, but is not likely to adversely affect (NL-b, -i, -d): the appropriate conclusion when effects on listed species are expected to be discountable (-d) or insignificant (-i) or completely beneficial (-b). This type of effect requires informal Section 7 consultation with the Service and concurrence with the determination.

  – NL-b indicates that actions that result in this determination will have only beneficial impacts for the species.
  – NL-i indicates that actions that result in this determination will be so small or immeasurable that they would be considered insignificant.
  – NL-d indicates that actions that result in this determination will be so rare as to be considered discountable.

- Where further details are appropriate concerning these effects and determinations, see the "Analysis of Management Actions and Effects Determinations" section. Individual determinations of analysis and effects determinations will be done on a case-by-case basis for individual projects.

- May affect, is likely to adversely affect (LAA): the appropriate conclusion if any adverse effect to the listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. In the event the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects, then the proper effect determination for the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires formal Section 7 consultation with the Service.

ANALYSIS OF MANAGEMENT ACTIONS AND EFFECTS DETERMINATIONS

Manpower and budgetary restrictions, and changes in biological and technological information, may affect the extent to which RMPPA may engage in the following program activities. Therefore, the likelihood of these potentially authorized activities to occur is largely undeterminable at this scale over the life of the plan. Site-specific analysis and determinations, and Section 7 consultations, where appropriate, will be conducted on a case-by-case basis throughout the life of the plan.

In addition, analysis completed at the site-specific project level includes determinations of insignificant, discountable, and beneficial affects for each T&E and Special Status Species that may occur or have the potential to occur, or that have habitat present within the project area.

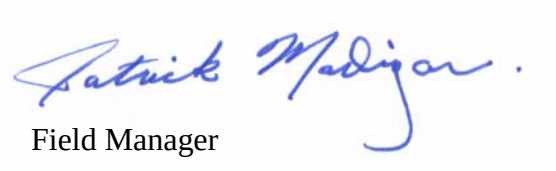
A T&E analysis worksheet (Determination of Need for T&E Conference/Consultation and Biological Evaluation on Other Wildlife Species) is completed for every surface-disturbing or other disruptive activity that may occur on BLM-administered public lands. These forms are modified periodically to comply with changes in the ESA. The forms are kept on file at our

office in Rawlins, Wyoming, and those forms associated with projects that require conferencing and/or consultation are forwarded to the Service in Cheyenne, Wyoming.

Under the provisions of section 7 of the ESA a letter of concurrence with the determinations, or further recommendation and guidance is requested at this time.

If you have any questions or need additional information, please contact Patrick Lionberger, Fisheries Biologist, at the address shown above or telephone (307) 328-4272.

Sincerely,



Field Manager

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